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MILWAUKEE, NOVEMBER, 1882.

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*The inherent and intrinsic merit of any article of manufacture, or any system of procedure, is alone demonstrated by the results secured by protracted employment thereof. Success is always a sure indication of merit in any article offered for adoption, and we risk nothing when we claim that the*

## STEVEN'S NON-CUTTING

# CORRUGATED ROLLER MILL

*Is to-day without a successful rival in popularity with the milling fraternity. Adapted for both spring and winter wheat, and for all the operations of reduction and flouring, and with a record of success in these operations unapproached by any similar device, no miller, contemplating a change in his equipment, should fail to familiarize himself with the features which have given these mills their popularity.*

THE JNO. T. NOYE MANUFACTURING CO.,

[Please mention this Paper when you write to us.]

BUFFALO, N. Y., U. S. A.

# ODELL'S ROLLER MILL.

## An Established Success.

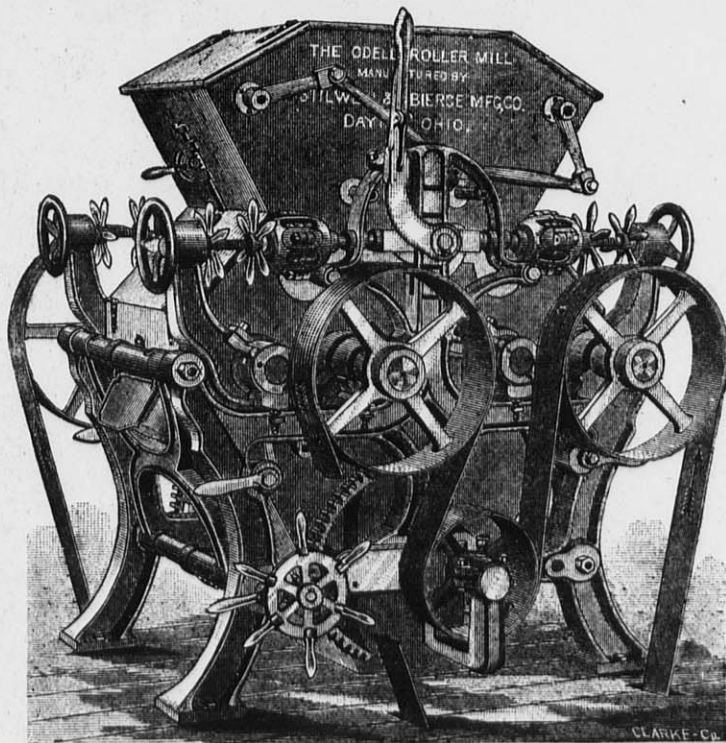
We invite particular attention to the following

### POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a **positive differential motion**, which can not be had with short belts.

2. It is the only Roller Mill in market which can be **instantly stopped without throwing off the driving belt**, or that has adequate tightener devices for taking up the stretch of the driving-belts.



3. It is the only Roller Mill in which **one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time**. The reverse movement of this lever brings the rolls back again exactly into working position and **at the same time turns on the feed**.

4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings **without disturbing the tension-spring**.

5. Our corrugation is a decided advance over all others. It produces a more even granulation, **more middlings of uniform shape and size**, and cleans the bran better.

WE USE NONE BUT THE BEST

## Ansonia Rolls!

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines.

Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO.,

[Mention this Paper when you write to us.]

DAYTON, OHIO, U. S. A.



**THE LARGEST MILL FURNISHING ESTABLISHMENT IN THE WORLD.**

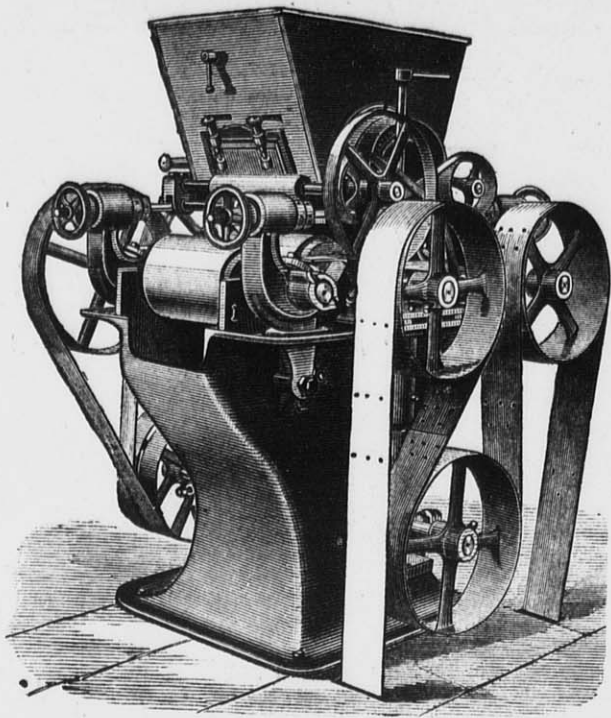
**RELIANCE WORKS,**

**EDW. P. ALLIS & CO. Prop's.**

**MILWAUKEE, WIS., U. S. A.**

**SOLE MANUFACTURERS OF**

**Gray's Patent Noiseless Belt**



**ROLLER MILLS**

**WITH**

**WEGMANN'S PATENT PORCELAIN ROLLS.**

**Unexcelled for reducing Middlings to Flour.**

**Far ahead of Smooth Iron or Scratch Rolls and entirely superceding the Mill Stones for this purpose.**

**Read the Following Letters.**

Messrs. E. P. ALLIS & Co., Milwaukee, Wis.

Terre Haute, Ind., Aug. 22nd, 1882.

Gentlemen:—We are very much pleased with the whole eight set of Porcelain Rolls you put in our Mill. The two double set sent us soon after starting up our mill last fall, we put in place of two run of stones for grinding our coarse Middlings.

We find the Flour from the Porcelain Rolls much more evenly granulated and much sharper and cleaner than that we got from the stones, besides the second or fine Middlings are much better, being almost entirely free from germs and not as specky.

Yours Truly,

KIDDER BROS.

[Mention this Paper when you write to us.]

Kings County Flour Mills, Brooklyn, N. Y., Aug. 15th, 1882.

MESSRS E. P. ALLIS & Co.

Gentlemen:—You ask how I like the Porcelain Rolls as compared with Mill Stones. I have been using the original Porcelain Gear Machines for five years and became convinced a long time ago that Mill Stones could not produce as satisfactory results.

I am now operating your Improved Machine of increased size with nice adjustments, working without noise with Gray's Patent Belt Drive. The Flour it produces is beautifully grainy and strong and its capacity two or three times more than the old Gear Machine.

It runs splendidly, gives no trouble, consumes less power than Mill Stones, dispenses with costly stone dressing and for reducing Middlings and soft branny residuums and tailings is unequaled by any Machine, Iron or stone, at least this is my opinion after five years of practical experience.

Yours truly,

JOHN HARVEY,

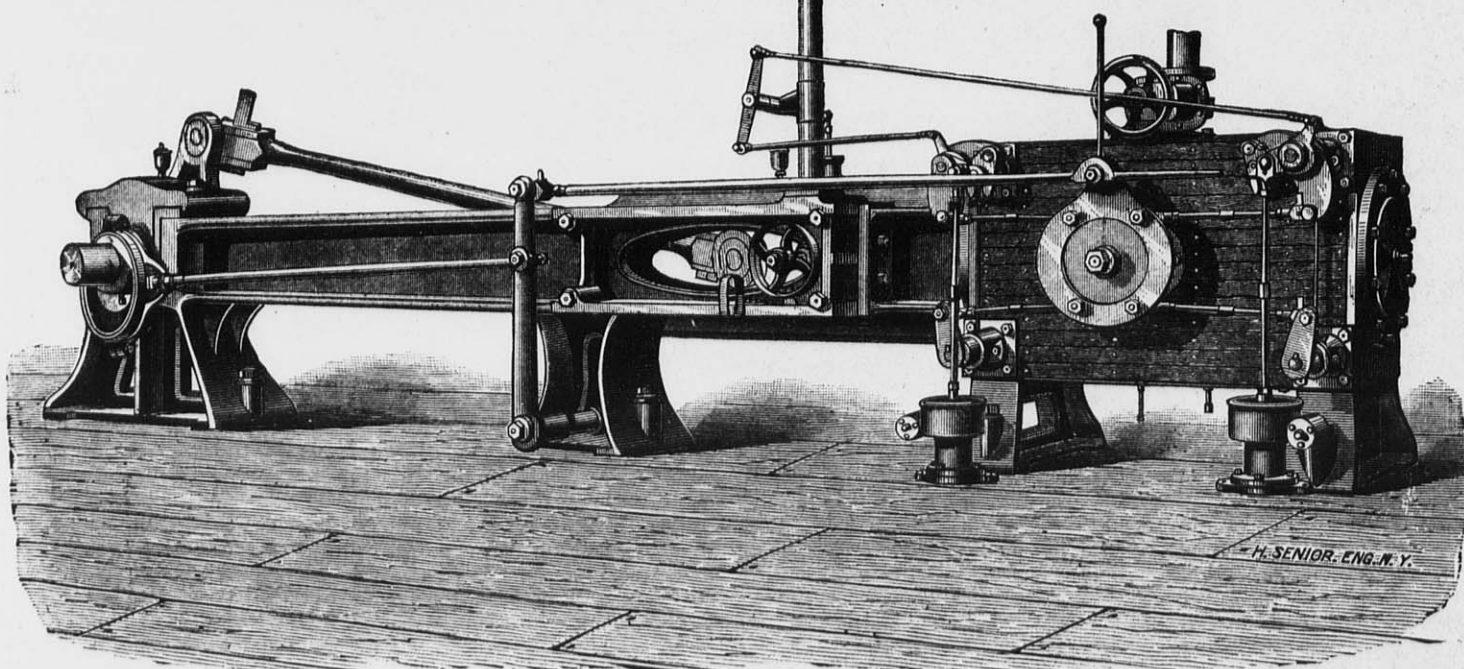
Head Miller Kings Co. Mills, Brooklyn, E. D.

**ALSO SOLE MANUFACTURERS OF THE CELEBRATED**

**REYNOLDS'**

**CORLISS ENGINES**

**Over Three Hundred of these Engines in use.**



**These Engines are especially adapted for use in Flouring Mills—being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other**

**Automatic Cut-off Engines.**

Send for catalogues of Roller Mills, Flour Mill Machinery, Saw Mill Machinery, Reynolds' Corliss Engines, etc., etc., address:

**Edw. P. Allis & Co..**

**MILWAUKEE, WIS.**

**The following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.**

J. B. A. Kern.....	Milwaukee, Wis.	Albert Wehausen.....	Two Rivers, Wis.	L. H. Lanier & Son.....	Nashville, Tenn.
LaGrange Mill Co.....	Red Wing, Minn.	Green & Gold.....	Faribault, Minn.	Wells & Nieman.....	Schuyler, Neb.
New Era Mills.....	Milwaukee, Wis.	Meridan Mill Co.....	Meridan, Minn.	Grundy Centre Milling Co.....	Grundy Centre, Iowa.
Daisy Flour Mills.....	Milwaukee, Wis.	Townshend & Proctor.....	Stillwater, Minn.	B. D. Sprague.....	Rushford, Minn.
Winona Mill Co.....	Winona, Minn.	Soo & Brinkman.....	Great Bend, Kansas.	The Eisenmeyer Co.....	Little Rock, Ark.
W. D. Washburn & Co.....	Anoka, Minn.	Frank Clark.....	Hamilton, Mo.	A. W. Ogilvie & Co.....	Montreal, Canada.
Archibald, Schurmeier & Smith.....	St. Paul, Minn.	N. J. Sisson.....	Mankato, Minn.	Geo. Urban & Son.....	Buffalo, N. Y.
White, Listman & Co.....	La Crosse, Wis.	Jas. Campbell.....	Mannannah, Minn.	A. A. Taylor.....	Toledo, O.
Milwaukee Milling Co.....	Milwaukee, Wis.	C. J. Coggin.....	Wauconda, Ill.	Pindell Bros. Co.....	Hannibal, Mo.
Stuart & Douglass.....	Chicago, Ill.	J. J. Wilson.....	Algona, Iowa.	Kehler Milling Co.....	East St. Louis, Ill.
Stillwater Milling Co.....	Stillwater, Minn.	Ames & Hurlbut.....	Hutchinson, Minn.	Walsh, DeRoo & Co.....	Holland, Mich.
Otto Troost.....	Winona, Minn.	Lincoln Bros.....	Olivia, Minn.	Goodlander Mill and Elevator Co.....	Fort Scott, Ks.
E. T. Archibald & Co.....	Dundas, Minn.	Northey Bros.....	Columbus Junction, Iowa.	W. Seyk & Co.....	Kewaunee, Wis.
C. McCreary & Co.....	Sacramento, Cal.	Bryant Mill Co.....	Bryant, Iowa.	Topeka Mill and Elevator Co.....	Topeka, Kan.
Gardner & Mairs.....	Hastings, Minn.	David Kepford.....	Grundy Centre, Iowa.	Strong Bros.....	Graceville, Minn.
J. Schuette & Bro.....	Manitowoc, Wis.	Waterbury & Wagner.....	Janesville, Minn.	C. A. Roberts.....	Fargo, D. T.
Minnetonka Mill Co.....	Minnetonka, Minn.	W. A. Weatherhead.....	South Lyons, Mich.	Coman & Morrison.....	Fox Lake, Wis.
J. D. Greene & Co.....	Faribault, Minn.	Geo. Bierline.....	Waconia, Minn.	J. G. Schaapp.....	Grand Island, Neb.
F. Goodnow & Co.....	Salina, Kansas.	James McCafferty.....	Burton, Mo.	Fred Schumacher.....	Akron, Ohio.
A. L. Hill.....	Faribault, Minn.	Geo. P. Kehr.....	Menomonee Falls, Wis.	Warren Mfg. Co.....	Warren, Minn.
Beynon & Maes.....	Owatonna, Minn.	Winona Mill Co. compounding their present 24x60 Winona. M.			
Eagle Mill Co.....	New Ulm, Minn.	Forest Mills Co.....	Forest, Minn.		



# The United States MILLER

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## UNPLEASANT HINTS.

Englishmen warned to look out for us.

"Hard Times" predicted for the United States.

The *Pall Mall Gazette*, (London,) an English journal of large circulation, and of much influence, predicts an unfavorable condition of American business affairs in the near future. Although we do not agree with the writer, we believe that the perusal of his lines by Americans will do no harm to them. It will at least show Americans what a large portion of British capitalists think of us. We quote as follows: "We can see nothing in the present position of the Union which differs essentially from that of 1870 or 1872. The population is doubtless larger, but then so are the operations of the railroad-builders, of the capital consumers in all directions. There is much more money sunk in land, in mines, in manufactures, in stocks and herds, every year now than was the case ten or eleven years ago, quite as much more in proportion as the population is greater. And most of its new capital is borrowed capital—English and other—so that the mortgaging of American material resources proceeds apace in many directions besides railway building, and after a fashion which goes far to prove that Mr. Batchelor's pleasant sketch of United States savings to be a mere illusion of the brain. Every year the obligations of the Union to foreign creditors deepen, and when every allowance is made for the wonderful development of the country and its magnificent resources, the fear must be expressed that this progress by way of universal mortgage, must end in a tolerably general bankruptcy. Mr. Batchelor is full of confidence in the agricultural resources of America. They are incalculable; and yet experience teaches us that even they also are precarious. No kind of prosperity can possibly be more so. Such a conjunction as a splendid harvest in Europe and a bad one in America is not impossible. This very season we have such crops in the greater part of Europe as must reduce if not destroy the greater part of the benefit which the American farmer is hoping to draw from the fine harvest there.

Although enjoying a strong position, the United States have no monopoly of supply. On the contrary they are every year subjected to keener competition as ocean transport cheapens and improves, and they must submit always to the chances of the seasons—chances which hit them with all the greater severity, that they have no trade worth mentioning, except a trade in the raw produce of the soil. A country, in short, which depends on its harvests for its prosperity, as the American Union does, must submit to greater ups and downs than countries whose business is miscellaneous and spread over wider markets. For the last few years the States have enjoyed a quite exceptional measure of prosperity because Europe has been smitten with misfortunes. But could anything be more ridiculous than to count on a steady continuance of that prosperity? Why throw the teachings of experience to the winds in the case of the American Union, of all places in the world? If on all hands we find a country busy laying out immense sums of capital—chiefly borrowed abroad—on the assumption that it is to enjoy forever an adventitious prosperity due in a great measure to the misfortunes of one or two of its neighbors, what is the reasonable and natural inference to draw? That it is best to help that country to be as extravagant as possible by lending it all the money we can, or that we should button up our pockets, saying: "Fulfill your sanguine predictions first; there will be plenty of opportunity to lend when you have proved that you can pay? There should not be much hesitation upon the alternative to choose, we should imagine. People talk and write now-a-days as if, because we want more food than we can grow at the best, America must get richer and richer in supply-

ing our wants. This harvest year may, perhaps, before it is over, put other notions into their heads. American meat exporters have, we suspect, other ideas now. We cannot, then, change the opinion we hold, that the present is not an excellent time to buy United States railroad securities, whether old or new. The new however, are most to be avoided, because the test of their quality has yet to be applied."

## A MILLERS' SCHOOL.

The following is the programme of the First Austrian Milling and Baking College at Simmering near Vienna:

This establishment is intended to give to millers, bakers, (also confectioners) a comprehensive theoretical and practical education, so as to enable them to thoroughly understand all milling and baking processes. Theoretical knowledge has a double advantage. It does not only guard against mistakes, but it also incites greater warmth and greater love for the profession by freeing a handicraft of its fetters and by imparting to the student an insight in the relations of cause and effect. It is necessary for this purpose to acquire a thorough knowledge of milling and baking, of its chemical and mechanical processes, also a practical knowledge of the numerous different tools, machines and apparatus, and a correct judgment about their construction and capacity. Such special technical education will be of the greatest advantage to the students, because they are thereby enabled to pursue their profession, not only in accord with the growing demands of our times, and with greater devotion and pleasure, but also with greater certainty of success.

The establishment is connected with first-class roller mills, brown and white bread bakeries, and with a milling machinery manufactory, in order to promote practical education, and the students have therefore the advantage of both practical and theoretical information at the same time. For only there, where science and practice go hand in hand, is it possible to receive a really useful education.

The course is divided into a technical and practical part, and in arranging the lectures it has been the main object to provide specially such information as will prove most useful during the future practice of the student.

Therefore, on the basis of long experience, the following programme has been fixed:

The culture, varieties, diseases, qualities, deterioration and value of those cereals which are used in milling.

Inorganic and organic chemistry, explained by lectures and experiments. Practical lessons in analyzing cereals with regard to their constituents; also the constituents of flour and other baking materials with regard to their quality, deterioration and adulteration.

The theory and practical management of the microscope; its use for the examination of grain, flour, etc., and for other investigations.

Millstone materials and the theory and practice of methods of millstone dressing.

Mechanics, with regard to milling and baking machinery. Hydraulics; stream regulations and mill dams; hydraulic and steam motors.

Roller milling; high and low grinding milling; the theory of the construction of millstones and roller mills; Budapest, Austrian and other milling methods.

The water, its composition and its effect on dough materials; milk and butter, their composition, preservation, examination &c.

Mechanical and chemical means for raising the dough. The yeast, its physiology, preparation, preservation, &c.; the leaven.

The theory of projection; sketching; drawing of machine details, machines, mills and bakeries.

Commercial lectures, including commercial correspondence; commerce; bills of exchange; transport; book-keeping for mills and bakeries.

Utilization of the by-products of mills and bakeries for feeding purposes; yeasts; and for the manufacture of spirits and vinegar.

The different lectures will be explained by means of suitable models, &c. In order to fully impress the lectures on the student's mind, they will be briefly noted down and will be weekly repeated; also written lessons and examinations will serve to fix their substance.

The laboratory will be so conducted that every student will be assisted in the independent investigation of grain, flour, &c., to compare his results with those of his fellow students in order to acquire accuracy in ascertaining the percentages of the constituents of the different materials.

Practical instruction in the roller mills and bakeries which are connected with the establishment.

The students can frequently inspect the different stages of milling and baking operations in first-class mills and bakeries. They can examine and see at work different kinds of milling and baking machinery as well with regard to their construction as to their capacity and work, and they can also learn how to manipulate them by assisting in the attendance on these machines.

In the milling machinery manufactory the students can observe the construction and manufacture of such machinery. Their practical instruction is further assisted by various experiments in such a manner that improvements proposed by millers and bakers or by students, are put to work and tried in order to compare them with existing arrangements. The results so obtained will be properly investigated and commented upon by qualified authorities in the milling and baking press.

Particular attention is drawn to the report of the establishment about the excursions to important mills, bread manufactories, bakeries etc., which will incite practical opinions about different technical arrangements. Students wishing to enter the establishment can apply personally or by letter to the director. Those admitted are millers, bakers and confectioners, without regard to their age; clerks, who wish to qualify themselves as commercial managers of mills and bakeries. Younger aspirants who wish to enter the school, must have acquired a sufficient preparatory education.

After the students have entered, they are in every way subject to the rules of the establishments. Respectable lodgings and proper board are provided in common hall.

The winter term begins 1st November and ends 1st March; the summer term lasts from 1st May to 1st September. The lectures mentioned in the above programme are concluded in each term. For those students who do not return to their former establishments, the directors will endeavor to find situations in some of the principal mills and bakeries of Austro-Hungary, Germany, Holland, Belgium, Sweden, Russia and America, where they have many personal acquaintances.

Further information will be forwarded by the director of the First Austrian Milling and Baking School, in Simmering, near Vienna.

## BELTED GRIST MILL.

The following plan of applying a turbine wheel to drive a grist mill of one, two, or three, or more run of stone has been recommended as the best plan that can be adopted when only one wheel is used. The plan of setting is one that has been largely used. The water-wheel is 14 inches in diameter under a head of 18 feet, driving a two-run grist mill, one run for wheat and the other for corn; and, of course, only intended to drive one run at a time. Power is belted from the pulleys on water-wheel shaft directly to the pulleys on the burrs, and motion is given to the burrs by tightening the tightener pulleys. Under each belt should be built a platform to hold the belts when the tightener pulleys are slackened. When this plan is adopted in mills formerly run by overshot or breast-wheels, the main upright may be run by belting from pulley on water-wheel shaft to a short, upright

counter-shaft, carrying a pinion-gearing into the spur-wheel on upright. This runs the upright in a direction opposite to the burrs. It is preferable to do away with cog-gear altogether and belt directly to the main upright, using either an open or crossed belt.

This plan of setting can be varied in the details to suit any flour mill and wheels of any diameter, and is undoubtedly the best plan that can be devised, and the great superiority of the belt arrangement will amply repay any miller for using it instead of the cog-gear, with its accompanying noise and jar.

The penstock is placed vertically instead of inclined. The frames are all made of 6x6 timber, except the bottom ones, which should be 8x8, and where the gate-box is bolted should have two pieces fit in between them to strengthen the hole cut for the gate-box. The sides should be of three inch stuff, nicely planed, grooved and fitted with tongues. This upright spout rests on the planking for the foundation for wheel, and is suitably secured at the top to forebay. This penstock may also be made by using upright posts and planking on the inside in the usual manner, well known to all millwrights. The gate is drawn by rack and pinion, and the hand-wheel is placed in front of the burrs.

## CLOTH TRACINGS.

A correspondent of the *Moniteur Industriel* refers to the difficulties encountered in tracing upon cloth or calico, especially the difficulties of making it take the ink. In the first place the tracing should be made in a warm room, or the cloth will expand and become flabby. The excess of glaze may be removed by rubbing the surface with a chamois leather, on which a little powdered chalk has been strewn; but this practice possesses the disadvantage of thickening the ink, besides, it might be added, of making scratches which detract from the effect of the tracing. The use of ox-gall, which makes the ink "take," has also the disadvantage of frequently making it "run," while it also changes the tint of the colors. The following is the process recommended. Ox-gall is filtered through a filter paper arranged over a funnel, boiled and strained through fine linen, which arrests the scum and other impurities. It is then placed again on the fire, and powdered chalk is added. When the effervescence ceases the mixture is again filtered, affording a bright colorless liquid if the operation has been carefully performed. A drop or two must be mixed with the Indian ink; and it also has the property of effacing lead-pencil marks. When the cloth tracings have to be heliographed, raw sienna is also added to the ink, as this color unites with it the most intimately of any, besides, intercepting the greatest amount of light.

## TRAMMING A MILLSTONE.

There are some millers so thoroughly skilled as to be able to tell by the "feel" and appearance of the meal when the runner requires to be trammed; but as there are comparatively few who can do this, the following method may be employed to ascertain whether the spindle, and consequently the runner, is out of tram: Take off the runner and fix a horizontal arm to the spindle head, with a pin or quill projecting down from it just far enough to mark on the bedstone; then, when the spindle is turned, the pin will show whether it is out of tram, and if so, in which direction it varies from the perpendicular. To put it in tram the followers in the bush may be adjusted, or the step-box moved; or if an improved mill-bush or adjustable step-box is used, the tramping is done by simply turning one or two screws.

The Slide-valve engine, manufactured by the Atlas Engine Co., of Indianapolis, Ind., was awarded the first premium at the fair at Little Rock, Ark.



## UNITED STATES MILLER.

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OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS.  
Subscription Price.....\$1 per year in advance.  
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MILWAUKEE, NOVEMBER, 1882.

THE *Northwestern Miller* of Minneapolis recently issued a very handsome Export Edition. It showed the result of much labor and good taste.

MESSRS. Howes, Babcock & Ewell, of Silver Creek, N. Y., have lately been receiving very extensive orders from British millers for their Eureka Flour Packers. This firm has a branch house at 16, Mark Lane, London.

THE John T. Noye Manufacturing Co. have recently put in machinery for recorugating and regrounding rolls, and are now prepared to execute all orders for such work on their own premises, and with great promptness.

THE John T. Noye Manufacturing Co. have just purchased the extensive premises, shops and ground of The Francis Axe Co., of Buffalo, N. Y., and will immediately occupy them in conjunction with their old and commodious quarters on Washington St., in that city.

The *American Elevator and Grain Trade* is the name of a new journal, published by Mitchell Bros. Co., Chicago, Ill., in the interest of elevator owners and grain dealers generally. It is a handsome and ably conducted paper, and should be subscribed for by every grain man in the country. The subscription price is \$1.00 per year.

FRANK ANDREE'S EXCELSIOR FLOUR DRESSING MACHINE has been on exhibition at the Milwaukee Industrial Exposition during the past few weeks, and has attracted considerable attention from visiting millers. One of the best mills in Milwaukee will introduce it at once. Millers should not fail to write to F. Andree & Co., 330 E. Division st., Chicago, Ill., for full particulars. See advertisement on another page.

DREAMING millers, and their sisters, cousins etc., may be interested in the following quotation made from a dream-book published in the eighteenth century: "If you dream of going into a flouring mill, where you see plenty of grain and flour, it is a good omen, as it shadows forth thrift and abundance. To dream that you buy flour is a bad omen, and portends sickness or the death of a near friend." Our milling friends will be careful how they dream.

## BOSTON ELEVATORS.

There are four elevators in Boston, the largest being the Boston & Albany Elevator at the Grand Junction wharves, East Boston. This building is 400 feet long, 75 feet wide and 125 feet high, and has a capacity of 1,000,000 bushels. The machinery is driven by a magnificent engine of 600 horse power, and twelve cars can be drawn in at the same time, the unloading requires from eight to twelve minutes, which includes the carrying of the grain to the top of the building, weighing it and dropping it into the bin. As each car holds 500 bushels, some idea can be formed of the rapidity that is needed to handle 6,000 bushels in this short space of time. This elevator contains 180 bins, each holding from 5,000 to 8,000 bushels, and it can dispose of 360 cars per day, if the sales are sufficiently prompt to take it away. The Shawmut elevator has a capacity of fifty cars, the Mystic wharf 100, and the Chandler-street elevator, also owned by the Boston & Albany corporation, has a capacity of 500,000 bushels, the latter building being used exclusively for the local business, but all of these are not sufficient to accommodate the grain trade of the port. The cars are drawn into the East Boston elevator by its own power, thus avoiding the smoke and dust from a locomotive. Just before the door of each car is a hopper, and connected with it is the elevator proper, which carries the grain to the top of the building. There are twelve of these elevators, which are simple rubber or leather belts, running in wooden grooves over pulleys, and connected with them are sheet-iron boxes. The grade of the grain having been determined, two men enter it, and with enormous steam shovels convey the grain into hoppers, from whence it is taken by the elevators to the receiver, in the top of the building. This receiver is in reality a huge scale, and is connected with the room below by iron rods, so that the weight of each car is indicated as soon as it is unloaded. The weight of the grain and the number of the car is then placed in a book by the milling engineer, and is entered to the credit of the owner. This re-

ceiver, to which the grain is sent, is not the storing bin, but it is carried from there to a bin below the receiver, where it is kept until ready for shipment. Beneath the receiver is a curiously constructed hopper having fifteen outlets, any one of which can be opened singly by turning a dial in the office below. After the grain is weighed, the bin for its reception is designated, the dial is moved to the number representing that bin, a rope connected with the bottom of the receiver is pulled and the grain is emptied into the hopper. Every outlet, however, is closed except the one leading to the designated bin, and the grain is soon stored with that of similar grade. This is done until the bin is full, when a check, showing the number of pounds or bushels and also the quality and grade, is hung upon the facsimile of the bins in the counting room. When it is wished to ship the grain, the merchants owning that in one bin agree, at a meeting of the Exchange, to send it on a certain steamer, the books showing how much each man is entitled to. The steamer is brought to the dock, and if she is to carry different grades her hold is divided into sections; if not, the grain is put in altogether. The grain has to be elevated again to load it into the vessel, and for this purpose hoppers, similar to the ones near the cars, are placed under the storing bins, and from them the grain passes again into the receiver. The weight is again noted, whenever the receiver is full, after which another aperture in the receiver is opened leading into an iron spout which conducts the grain out of the building and into the steamer's hold. At the Grand Junction elevator there are six of the spouts, which can all be operated at the same time, and 150,000 bushels may be loaded in about twenty-five hours. There are also three spouts on the other side of the elevator from the steamers' dock, so that schooners and other sailing vessels can be loading at the same time. In this elevator there are many new inventions to facilitate the handling of the grain, so that very little manual labor is required.—*American Elevator and Grain Trade*, (Chicago.)

## WHAT ROBERT GRIMSHAW C. E. OF PHILADELPHIA, KNOWS ABOUT "MILLING NEEDS AND IMPROVEMENTS."

(From his paper read before the Pennsylvania Millers' Association, Oct. 10, 1882.)

The building must be large enough to afford room for storage and for additional machinery, clear, dry, light, and stiff enough to stand the motion of the machinery, and the filling of the garner, without sagging, and throwing the burrs out of tram, and the shafts out of line, and causing the gears to crowd. It pays to have a building so stiff that the journals and gears will not bind and heat. It does not pay to have the whole mill rise and sink as the garner empty and fill.

Explosions may interest you. The best time to be interested in them is before they occur. The dust catcher will lessen their liability to occur, and ought to meet with favor in the insurance companies' eyes. I do not in the slightest degree endorse the suggestion, (made in the interests of the underwriters,) to keep the atmosphere of the mill artificially damp. There is trouble enough now with curbs, spouts, conveyors and reels pasting up, without encouraging it. If a mixture of dust and dry air will explode, carry the dust away and adopt preventive measures to prevent ignition in the spouts that carry it.

Let me advise you to do your own insuring; that is, to form mutual companies, with rigid inspection; not dictating to any one what he shall or shall not do, but simply reporting and recommending what is best to do, and discriminating in the rates in favor of those who keep their risks the lowest.

The power should be amply sufficient, with a margin for increased machinery; the motion absolutely regular, and the cost per horse power low. One thing to guard against is friction. Not the rubbing of a \$10,000 policy against a \$5,000 mill; but the every day friction which uses up power and wears out machinery of all kinds. My tests show that fully one-fourth, and often one-third, of the friction in a mill is entirely unnecessary and purely preventable. In a corn mill in New York I found that it took over 10 H. P. to turn the engine and shafting, with no machinery, or load. By simply changing the lubricant of the engine alone (cylinder, guides, and main bearings.) I reduced this to about 8 H. P.; that is fully 20 per cent. I could have dropped it another 10 per cent. by following out the bearings all the way up. If your mill is using more than 40 actual horse power per hundred barrels per 24 hours, that is, more than say 10 horse for every barrel of flour per hour,

in a fair sized mill, it is using too much; and the probabilities are that all over that is wasted in friction. Where a water-wheel is used, it and the race, rack, gate and flume should be kept clear, in line and in repair.

In the choice of a wheel, suit your conditions. Some need a wheel that will be sparing of water; others one that will do good work at part gate; some have light brush to contend against, and others must stand heavy knocks from heavy drift-wood. There is no one wheel that best answers all requirements. Buy of a reputable builder that type of wheel which is most needed at your own mill, and see that the makers guarantee its continued good performance.

Whatever power you have, let it be regular; and to accomplish this a governor is necessary. When I say a governor I mean one capable of handling your engine no matter how the boiler pressure and the load vary. In most cases a good water wheel governor will be found to increase the regularity of motion and hence the coolness of grinding and evenness of bolting. Do not forget that as our trees are being cut down, the rain fall is lessening and the water power with it; and that auxiliary engines to help the waterwheel along are commencing to be necessities in a large proportion of mills.

If your water power seem insufficient, and you find that you are using, to make 100 barrels in 24 hours, more than 1,650,000 foot pounds of water per minute, you are wasting water. That is 165,000 lb. of water a minute under 10 feet head, or its equivalent, should make 100 barrels per day. Ciphred up in cubic feet of 62½ lb. each, it means that the following number of cubic feet of water under 10 lb. head are all that are necessary, with good waterwheels, to do the work set opposite them, (yield reckoned at 4½ bushels, or 270 lb per barrel.)

cu. ft. per min.	lbs. per min.
132.6	8360.
596.88	39600.
24 57	1550.

Under greater heads the amount needed is proportionately less.

To show how little water is really required to give a horse power, and how little is needed to make a barrel of flour, I append a table showing the number of square inches of flume required to yield different amounts of power, under 10, 20 and 40 feet head.

	10	20	40
To yield 1 horse power	9.78 sq. in.	3.46 sq. in.	1.228 sq. in.
To mill 1 bush. wheat per hour	20.864	7.3313	2.6641
To make 1 bar. flour per hour	83.883	33.216	11.7468
To make 1 bar. flour per 24 hours	3.912	1.384	.4892

reckoning the useful effect of the wheel to be 80 per cent., of that due to the weight and fall.

If you use more than 40 lb of coal, per barrel of flour, you are burning up money that you had better save. Some mills use 90, and some get along with 25 to 30. Most mills use too much. I could name a mill turning out 60 barrels per 24 hours, that had its coal consumption reduced from 35 tons per week to 25; a clear net saving of 10 tons of coal, worth \$37.50, per week; or about \$2000 per year.

If a steam engine is used, and over 25 horse power is needed, it will pay in the decreased steam consumption and in the increased regularity of motion, to have an automatic cut-off. A steady line of steam is economical and helps the engine along; and shaking grates and damper regulators aid in keeping the steam always just at the blowing-off point.

The transmission is usually the weakest point about flouring mill. Heavy and ill designed gears are absorbing power, grinding themselves away, or belts are used which are either flapping and slipping or strained so as to shorten their life and use up power in excessive friction. If it take more than fifty square feet of double leather belting per minute to make each barrel of flour per hour, something is radically wrong about your transmission; because fifty square feet of good double leather belt properly run on the right kind of pulleys will yield one H. P.; and 40 bushels will easily make 100 barrels in 24 hours. Keep your leather belts well oiled with castor oil, and they will take hold and drive steadily.

The longer your bearings of shafts and journals generally, the easier they will run, so long as they are kept in line. If there is rumbling, rattling and roaring among your gear wheels, and the burrs and reels run fitfully, rest assured that you will not have as cool grinding and as clean bolting, as though the wheels ran quietly and steadily; and that power is being wasted and gearing destroyed by undue friction. To remedy it, either new and well-made gears, or a back-lash spring, or both, will be found the correct thing. Keep your eye on wire-rope transmission for long distances; especially where your mill is on a stream with steep banks, and you want to get the full fall of the water without losing the ad-

vantage of being on the general wagon road level and out of the reach of floods. It also offers a good way of hiring steam power to help you through a dry season; or of renting out power when you have too much.

It is the fashion for those who ought to know on which side their bread is buttered, to wax funny because some of the milling papers sing, whistle and repeat the prime necessity of thoroughly cleaning the wheat before grinding. It may be monotonous, but it is a frozen fact, all the same; and there is more philosophy in common sense cleaning at the start than in all the re-bolting and double-purifying from here to Halifax.

Noah must have been monotonous as a weather prophet, (he certainly was uncomfortable as a navigator, with all that menagerie aboard,) but there was solid truth in his prophecy, for all some irreverent neighbors may have asked him to give them a rest, once in a while. Well, they got the rest!

Rest satisfied that, no matter what system of wheat breaks or what process you use; no matter how many and what kind of purifiers and reels you may have, unless you start out with full weight wheat thoroughly and properly cleaned, you cannot expect good results. An ounce of cleaning prevention is worth a pound of bolting cure. A scourer that does not break the bran is worth more than a bolt or purifier that will take out the bran specks.

It is easier to get cockle and garlic out of wheat than to take them out of flour.

I find the percentage of purely unnatural dirt in a bushel of wheat to vary from ½ to 6 lbs., and even 8 per hundred. That wide range must mean something. Discourage the farmer from bringing dirty wheat. He can remove dirt cheaper than you can, and should be made to do it.

Be careful in buying wheat. Remembering that if 60 pounds of wheat is worth 60 cents, 56 pounds wheat is not worth 56 cents per measured bushel. The Canadian millers have recently taken sensible action in this. They pay 1, 2 and 3 cents per bushel extra for wheat running 61, 62 and 63 pounds a bushel, and down to 32 cents per bushel discount where the wheat runs only 50 pounds.

There are some grain cleaners in the market that would make first-class bark mills. Yet they claim to lay the berry gently on its side on a velvet pillow and fan out—only fan out, mind you—all the skin dirt and most from the crease. Be cautious in throwing away any machine until it has been given thorough trial with careful usage adapted to the conditions. Do not condemn burrs because they will not flour middlings, unless you have dressed them for middlings-flouring and given them that accurate tram, balance and drive which they need for such work.

"Prove all things; hold fast that which is good."

I believe that the present system of scouring and cleaning will some day not far off, perhaps, give way to a process which will entirely remove the bran clean and little broken, leaving the kernel clean and and uninjured and ready for immediate grinding at one operation into a straight grade, which shall owe its slightly golden color and its richness and fattening properties to the germ. The bran will be fit for packing purposes; nothing more. The office of the reel will be flour grading, not speck removing; and the purifier will go out as it came. More difficult things than wheat hulling have been done—for instance cotton ginning; or, to come right down to milling—middlings purifying.

Meantime you are milling in the present; a progressive, competitive, crowd-you-to-the-wall sort of present; and have of course to use now the machines and processes of to-day; still with one eye open ahead for the new ones coming in all the time.

The great battle of the millstone and the roller wages fierce and fiercer, with doughty partisans on either side, hurling at each other many hard facts and not a few equally hard lies and fancies. It is asking a good deal to call for one to commit himself squarely to belief or statement that either of these two, or their young rival, the iron disc, is the only means by which wheat can be milled. There are too many barrels full of proof to the contrary, on either side.

If the mill is large enough, the wheat should be graded with two sizes before grinding or breaking. Burrs, discs or rolls set for grinding or splitting grains of one size will not work as well on any other size. This is not a fancy theory, but a solid reality. If the grinding and splitting facilities are not sufficient to handle two grades at once, then try to garner one grade up until a slack time, and set the burrs, discs or rolls especially for this grade. It will pay.

[To be continued.]



## THE ATLAS-CORLISS ENGINE.

We publish, in this number, an engraving of the semi-fixed engine, manufactured by the Atlas Engine Works, Indianapolis, Ind. The engine and boiler are remarkably fine specimens of design and workmanship, and illustrate the most approved practice in an engine of its class. It is built especially for saw mill work, where permanent boiler settings and engine foundations are not desired. The engine is carefully designed, is simple in construction, and economical in the use of steam, being one of their standard slide-valve engines, which they build in sizes ranging from 20 to 100 horse-power. The cylinder is made of carefully selected iron, the steam ports are large, and as short and direct as possible; the proportions being ample for the highest rate of speed for which it is desirable to run an engine of this kind. The valve is carefully proportioned to and accurately scraped to the valve seat. The bed plate with guides and main bearing are cast in one piece, forming a strong and heavy casting, the metal being distributed so as to meet the working strain to the best possible advantage. The bearings are all very large, and carefully fitted; the piston and valve rods, crank pin and cross-head pin, are all made of steel. All parts of the engine are carefully fitted to standard gauges, and are perfectly interchangeable, so that duplicate parts can be furnished on short notice, in case of accident or long-continued wear. The boiler is of the standard locomotive pattern, is safe, durable, and economical in the use of fuel. The fire box has an arched top and is thoroughly stayed at the top, bottom and sides by means of stay-bolts, which are screwed into both plates and riveted. There is a water space all around the fire box, admitting of a free circulation, and doing away with the cast front so common in small boilers of this character. The tubes are of the best American manufacture and are carefully expanded to fit the heads. The engine and boiler are both mounted on the same skids, and all the connections are furnished, forming a most desirable and compact outfit, requiring no special foundations, and can be moved from one part of the country to another, in case it is necessary.

The Company have the very best facilities for manufacturing these engines, and carry them in stock for immediate delivery. They are built in two sizes—20 and 25 horse-power. Full information with terms and prices can be had on application to the Company

## THE ECONOMICAL USE OF STEAM POWER.

BY G. H. FLOWER.

While many exhaustive and valuable tests have been made with engine boilers and furnaces to determine the water used per hour per horse power by the engine, or the water evaporated from the boiler per pound of coal, yet the economy of a steam plant as generally designed is a problem that can only be solved after each element in the combination is put in operation as a whole. While to the expert, the amount of water evaporated per pound of coal, or the water used by the engine, is interesting and necessary to a proper knowledge of the economy of a given steam plant, yet with the steam user the dollar is the standard to which he refers.

The coal and water used are very important factors in the expense account of the steam user, but they are not the only factors, and the designing engineer must bear that fact in mind, if he expects success; and because it has been lost sight of, disappointment or failure has been the result, and even with the best designed steam machinery, mismanagement in its use has reversed—wholly or in part—an expected economy.

It is generally taken for granted that, when a reliable automatic engine is used, good economy is always the result; that would be true so far as the engine is concerned, provided due regard is had to having an engine properly suited to its load, and if that is not the case, a guarantee of economy can not be given with any degree of certainty. And in this connection it may be remarked that there are many automatic engines in use

that could be replaced with profit by an engine of the proper size that has not the pretensions to economy generally associated with the name of automatic. That this is true, is not an argument against the automatic engine, but it is an argument against having an engine unsuited to its load. It is not a matter of the difference in the cost of the two engines, but the difference in economy which may amount to many hundreds of dollars every year.

The prudent business man who, when buying a lathe-planing machine or printing press, will exercise the greatest care to get the best in the market, will, when it is a question of engines, boiler or furnace, not deem it of enough importance to merit his attention, except, perhaps, a preference may be had for a particular style of engine, and he is surprised when everything is in running order to find the engine-room expenses much larger than was expected, the usual explanation of which is that "we are doing lots of work." The expert may be consulted about this time and, to the confusion of all, prove that the expense is all out of proportion to the work done, and that no parts of the steam plant from grate bar to engine are in harmony with each other. This could, and under the proper management would, have been avoided; but now the next best thing will have to be done, viz: place in harmony, so far as it is possible to do so, the different elements in the combination, using a grade of fuel suited to the boiler and furnace, cutting down the many little expenses that enter

conditions are found not to exist, the reverse of economy is proven.

One condition which, when it is assumed, is almost always over-estimated, is the amount of work done by the engine. Few, except they who have an experience in that direction, from a correct idea of the amount of work represented by the term horse-power. All know that it is 33,000 pounds lifted one foot in one minute, but that is not a unit by which the ordinary observer can form any correct opinion of the work done, and recourse is had to the belting and the appearance of things in general. If an attempt is made to calculate it from the engine, the pressure shown by the gauge is the misleading factor in the calculation.

We have, however, an instrument, the indicator, by which the power of the engine may be ascertained accurately, and the same instrument furnishes, when in proper hands, data from which to judge of the economy of an engine. It points to any defect, if any exists, and to the cause, the engineer must apply the remedy.

The term horse-power as applied to the boiler, is very indefinite, no commercial unit having yet been agreed upon. It is likely, however, that the standard adopted by the experts at the Centennial, to-wit: 30 lbs. of water having a temperature of 212 deg. Fah. evaporated into steam at 70 lbs. pressure per hour, or its equivalent, will be the unit of measurement most generally used.

It is not safe to assume that all the water pumped into the boiler is evaporated from

tive waste and they do not produce the results hoped for, but under certain conditions may work serious injury to the boiler.

An incorrectly proportioned boiler or furnace, or incompetent management may render *nil* all that was expected to be gained by an economical engine, or if the engine is at fault the most correctly designed boiler and furnace may be made to appear to be working extravagantly. What then is the result when all the conditions are bad.

It is therefore of the first importance, if economy is to be expected, to have every part of a steam plant in harmony with every other and to have the management such that the economy will be maintained, for a fortune may be spent unnecessarily in the maintenance of a poorly designed or poorly managed steam plant.—*Industrial World*.

## FLOUR AND GRAIN TRADE NOTES.

THE *Miller* (London) says: The retaliatory flour duty imposed by the Austro-Hungarian Government, and directed chiefly against Germany, has resulted in a striking diminution in the imports of flour. In June only 18,900 cwt. entered, against 92,000 cwt. in June, 1881.

SPAIN has just passed through one of the most abnormal seasons, as far as the weather is concerned, on record. In Navarre no rain fell for eleven months, and in Andalusia for nine months. This drought naturally totally destroyed the crops; but in the middle of September a veritable deluge took place, inundating the country, and doing in some parts

of the country as much damage as the previous drought had effected. Spain will, this year, therefore, have to import very largely of grain, and flour at high prices, for the government does not seem disposed to suspend the import duties in the face of the opposition offered by the agricultural interests of the country.—*Millers' Gazette*.

THE first flour mill in Minneapolis was built in 1860, and in that year the shipments of flour were 30,000 barrels; in 1873 they were 585,000 barrels, and in 1881, 3,142,974 barrels. The quantity of wheat ground into flour in 1881 was 16,500,000 bushels, being 2,500,000 bushels more than the entire receipts at Chicago in that year. The foreign export of flour from Minneapolis began in 1878 with 109,183 barrels, and amounted in 1881 to 1,181,324 barrels.

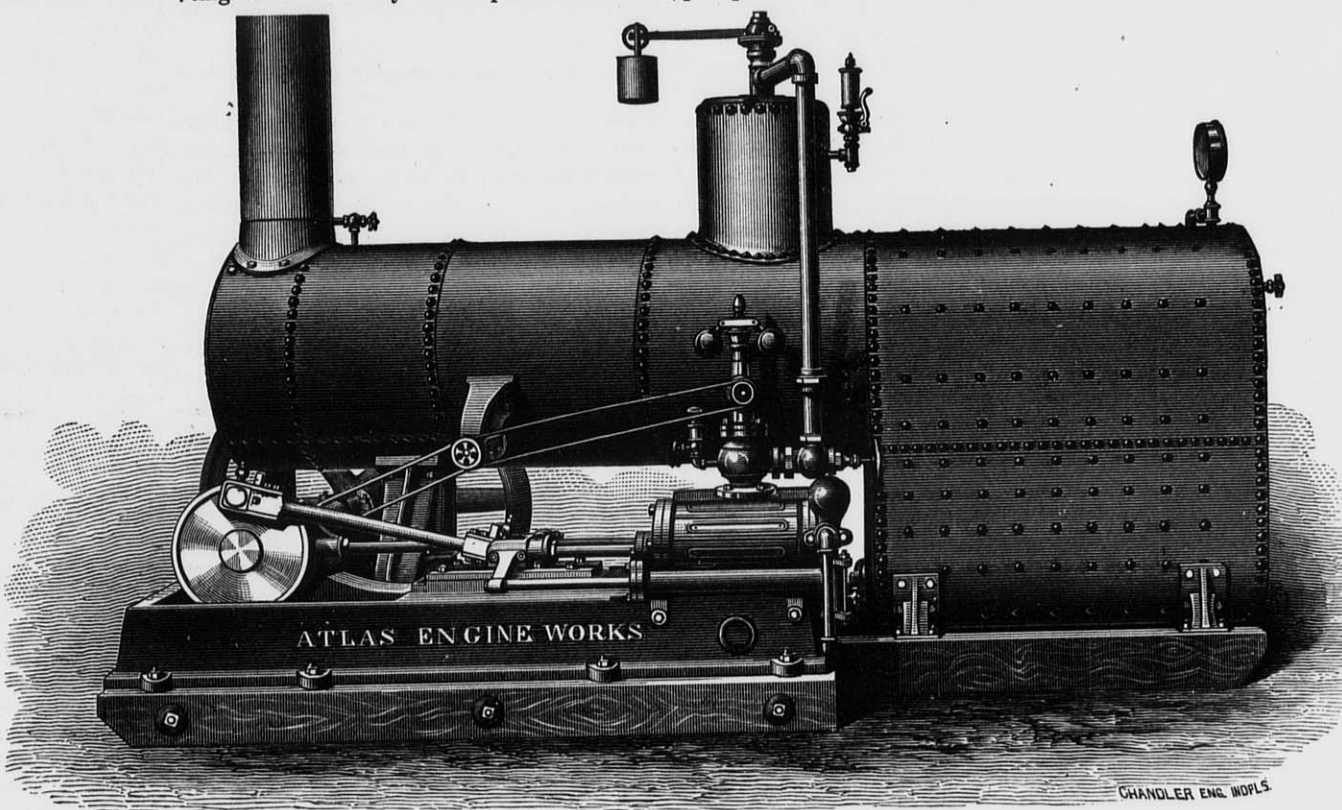
The products of the manufacturers for the year were valued at \$15,000,000.

LATE advices as to the harvest in Scotland indicate that oats will yield one-third above an average, wheat in excess of an average, and barley will show an improvement in quantity, but especially in quality, over the yield in 1881. Notwithstanding the ravages of disease and other drawbacks, beans, turnips and potatoes will do well. The total estimated value of Scotch root and cereal crops is placed at \$90,000,000.

## NOT THAT KIND OF SHEEP.

A pretty good joke on a Milwaukee miller is now going the rounds. The *Berlin* (Wis.) *Times* tells it as follows:

"It seems that the widow Coville, of Aurora, had lost some sheep—ewes—about a dozen being missing. Her brother, a gentleman engaged in the milling business in Milwaukee, was on the train Monday (Oct. 16), en route for his home, he having been visiting his sister. He looked at the carload of sheep which Stedman & Morris had on that train, and thought the ear-marks on some of them corresponded with those of his sister's lost sheep. He telegraphed to the sheriff at Milwaukee to be on hand and take possession of the sheep at Milwaukee, stating that they were stolen. The widow's son, at Aurora, was also telegraphed to come on and identify the sheep. Thus the sheep were detained from the Chicago market, their destination. The boy failed to identify the sheep—in fact the sheep in the car were wethers, while the lost ones were ewes. Hollis sold his sheep in Milwaukee, demanded \$50 damages and got it, the miller paid the costs of the legal proceedings, probably another \$50, and probably will not go into the sheep business again very soon."



THE ATLAS-CORLISS ENGINE.

so largely in the expense account, with the end in view of producing the greatest amount of power with the least expenditure of money.

There are many places where the engine only requires a part, and in some cases a small part, of the steam generated by the boiler; that is particularly true, where steam is used for heating. This then is another outlet for steam, and it is safe to say, that the heating apparatus usually constructed is a very prolific source of waste. That this assertion is true has been proven many times; indeed, there are cases where one-fifth of the steam used for heating purposes was being wasted, and unfortunately such cases are not rare. In fact, in the use of steam for the many purposes for which it is used, good economy is the exception, not the rule; that this is the case is due to faulty design or to mismanagement or both. It has been many times proven in a practical manner that, with the same load and in the same place, one engine will use twenty-five per cent. less fuel than another, and that one grade of coal will give far better results than will another grade, although burnt under the same boiler and in the same furnace.

An engine, boiler and furnace are not a rigid machine that can only work within the lines mapped out for it by the designer, but they will adapt themselves to the existing conditions, be they good, bad or indifferent; and that too without discovering to the attendant whether or not the conditions are good or bad, and to the question of economy, will only yield an answer after the most persistent and painstaking inquiry. Hence it is that when a steam plant may be supposed to be doing its work with a fair degree of economy, by assuming certain conditions, that when the matter is investigated and the supposed

it, for if the boiler and furnace are not in proper proportion or even when they are, unless a grade of fuel is used suited to them, a large per cent. of water may be and frequently is carried out of the boiler with the steam. This is not only a serious loss but, in some cases, it is dangerous and has led to the "bulging" and cracking of the boiler. It may also be caused by dirty water and in some instances by boiler purger. The quantity of water thus carried out of the boiler can only be detected by the calorimeter.

Then to determine the horse power of a boiler we must know the amount of water evaporated per hour. This we can do by the use of the scales and calorimeter and from them we get data which enable us to judge of the economy of the boiler and if found unsatisfactory a remedy may be applied.

With the furnace the scientific unit is the amount of water caused to be evaporated from the boiler per pound of combustible and the economic working of the furnace depends upon so many conditions—the grate surface, the heating surface of the boiler, the general construction of the furnace and last, but not least, the mode of firing—that it is not safe to assume that the furnace is an economical one unless all the conditions are known and its economical working been proven.

To the furnace may generally be charged a large waste; that this is true is proven by the many patented devices for the purpose of saving fuel. These devices generally take the shape of a smoke burner.

It may be true that there is a waste when the furnace is producing smoke, but the waste is not nearly as large as the smoke burner, men would have the public believe; indeed with many machines there is a posi-



## UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, OCTOBER, 1882.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

## Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882, was completed, ready for delivery February 1, 1882.

It shows that there are in the United States 21,356 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234; California, 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 229; Maryland, 349; Massachusetts, 363; Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennessee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances. This work is indispensable to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy, on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

We acknowledge with pleasure the receipt of Volume 19, of the Illinois State Agricultural Reports, from Hon. S. D. Fisher, Secretary.

HOLLAND is said to have 11,000 flour mills, 10,000 of which are driven by wind and 1,000 by water or steam power. Very little fine flour is used.

Mr. Fred. K. Clark, representing the *Northwestern Miller* called on us Oct. 28th. He reports business good and judging by the looks of the paper now-a-days, we think his report O. K.

THE Adelaide Milling & Mercantile Co. at Adelaide, South Australia, has a capital of \$3,700,000. The Company now has four large mills in operation and are looking to London principally for a market for their flour.

Hon. Geo. Bain, of St. Louis, Mo., President of the Millers' National Association, has just been nominated for Congress by the Republicans of the Ninth District of Missouri. If any republican is ever elected in that democratic district, it is probable that Geo. Bain will be the man.

We have received a copy of THE AMERICAN NEWSPAPER ANNUAL FOR 1882, published by N. W. Ayer & Son, of Philadelphia, Pa. Price \$3. It contains a carefully prepared list of all newspapers and periodicals in the United States and Canada, arranged by states in geographical sections, and towns in alphabetical order. Advertisers will find it a valuable work of reference.

EIGHT out of the eleven starch factories of the West have signed terms forming a single stock company, under the title of the National Starch Company. The factories that have not signed are located one each at Madison, Franklin and Elkhart, all in Indiana. Another meeting will be called, when it is probable the rest will be whipped in.

THE flour mills in Denmark have experienced a very unprofitable year's business, owing to failure of home crops, the high price of imported wheat and rye and to Swedish

tariff regulations which almost prohibited Danish flour from coming into Swedish markets. The dividends of milling corporations generally have been either very small or nothing. Danish millers now however, look forward to a profitable season.

MESSRS. Gibson & Clark, of Glasgow, Scotland, write under date of Oct. 11th as follows: The weather during the past week has been rather unsettled, a good deal of rain has fallen which has retarded the ingathering of the crops in the late districts.

Our imports of wheat and flour from abroad have been liberal, but small of other articles; coastwise and per railway the arrivals have been limited.

The trade has been firm with a fair business doing in wheat and flour. Maize from scarcity has improved 6d. per 280 lbs. Other articles quiet without much change in prices.

To-day our Corn Exchange was well attended. Red Winter Wheat was 3d. per boll (240 lb) dearer. Flour firm. Barley, Oats, Beans, and Pease steady. Maize 1s. dearer. Oatmeal unaltered.

KUFEKE's report under date Liverpool Oct. 11th 1882 says: The Weather continues seasonable and farmers are actively engaged with field work. Farmers' deliveries of native wheat continue on a fair scale and last week have been about 229,000 qrs. but the average price is again reduced and is only 39s. 6d. per imperial quarter against 46s. 9d. at the same time last year.

I have to report a very good demand for flour of all descriptions during the past week and a satisfactory business has been done in new *American Winter Wheat* flours, both on the spot and for shipment. Prices though hardening and in sellers favor, cannot however be quoted any higher.

American advices quote as a rule rather higher prices, but so far our market does not respond.

Wheat exhibited an improving tendency and Red Winter has advanced 2d per cental in value whilst other descriptions are unchanged.

A Baltimore paper of late date says: "One of the most striking and beautiful wagons in the whole procession during the Oriole celebration was that of the C. A. Gambrell Mfg. Co. This was drawn by six handsome horses and loaded with barrels and bags of flour of their own manufacture, and decorated with sheaves of wheat. This company own three immense mills—one at Ellicott City with a capacity of 500 barrels per day, and one at Orange Grove, on the Baltimore & Ohio road, which turns out 450 barrels per day—giving them a combined capacity of 1,300 barrels of flour per day, and which consume daily 6,000 bushels of wheat. This company use nothing but the best Maryland and Virginia winter wheat, and for years Gambrell's flour has had a reputation for its fine quality throughout the eastern, southern and middle states. It may be interesting to know that their Patapsco mills at Ellicott City turned out its first barrel of flour in 1774.

"This company have this year introduced the rollersystem into all their mills, and with the superior winter wheat of the season, are placing on the market a brand of flour, the 'Patapsco Superlative Patent,' that has few equals in this or any other market.

The C. A. Gambrell Mfg. Co., is the oldest, one of the most enterprising and largest concerns of the kind in the middle states, and their productions have always stood high in every respect."

## A SPECIAL OFFER.

To all persons in the United States and Canada sending in their subscription to the UNITED STATES MILLER, for one year, accompanied with one dollar in cash, before December 1, 1882, we will forward the following ten books, printed in pamphlet shape, from clear type and on good paper:

1. THE LADY OF THE LAKE, a romance in verse, by Sir Walter Scott;
2. GRIMM'S FAIRY TALES FOR THE YOUNG, the best collection of fairy stories ever published;
3. DAVID HUNT, a novel, by Mrs. Ann S. Stephens;
4. REAPING THE WHIRLWIND, a novel, by Mary Cecil Hay;
5. DUDLEY CARLETON, a novel, by Miss M. E. Braddon;
6. ESSICA, or, The Mystery of the Headlands, a novel, by Etta W. Pierce;
7. A GOLDEN DAWN, a novel, by the author of "Dora Thorne";
8. VALERIE'S FATE, a novel, by Mrs. Alexander;
9. SISTER ROSE, a novel, by Wilkie Collins;
10. ANNE, a novel, by Mrs. Henry Wood.

This will furnish you sufficient light reading matter for a whole year and a first-class milling journal.

## A KANSAS COURT SCENE AND BUFFALO HUNT.

In the correspondence column of "Turf, Field and Farm" of Oct. 27, we find the following from the pen of a gentleman now residing in Milwaukee:

EDITORS TURF, FIELD AND FARM: A pleasant anecdote in your issue of October 13, entitled "Early Justice and Sport in Michigan," reminds me of an incident which happened in Smith County, Kansas, in 1871.

Some parties in Smith County got into a lawsuit about cattle. Smith County then had probably not more than 500 inhabitants, most of whom lived in "dug-outs." The writer was employed to prosecute the case before a justice of the peace, who lived with his family in a one-roomed "dug-out," on the North Fork of the Solomon River. The time was summer, and the justice organized his court beneath the spreading branches of a giant cottonwood on the bank of the river; a jury was duly empaneled, the jurymen spread themselves out in a row on the grass, and the trial proceeded in due form and manner.

About the time the case was beginning to get interesting a young fellow appeared at the top of the bank and shouted: "There's a herd of buffalo comin'. Look out for 'em." Quick as a flash the justice jumped up and exclaimed: "Gentlemen this court stands adjourned for one hour for a buffalo hunt." Everybody carried a gun or revolver in those days, and many present had horses ready saddled, and, Mr. Editor, in less time than you can read these lines that court was transformed into a regular mounted steeple-chasing party after those buffalo. The chase occupied less than half an hour and three buffalo were killed. The party came straggling back to "court" and after discussing the affair for half an hour more, business was proceeded with. If this episode should ever meet the eyes of any of the old Smith County pioneers they will readily recollect the hunt, which at that time, did not seem to be much out of the way.

The northernmost place in the world where rye and oats mature is at Kengis, in the Swedish province of Norrbotten, forty-nine miles to the north of the Polar circle, whereas the northernmost spot where corn is grown is at Muoniovara, ninety-eight miles to north of the Circle.

## A TECHNICAL MILLING SCHOOL.

In this number we give a synopsis of the course as pursued in one of the Austrian schools for teaching young men to become millers. We do this to show about what may be expected of a milling school when established in this country. This question is attracting much attention among many of the millers of the United States. They are desirous of having their sons learn the theory and practice of milling in as short a time as possible without being compelled to spend several of their best years in the mill often under the instruction of practical but often comparatively ignorant millers. A school for millers will soon be established in England, and candidates for admission must be able to pass an examination in order to enter. The course of instruction is to be both theoretical and practical, and when a student has finished the course prescribed and passed a satisfactory examination he will be furnished a certificate which will doubtless prove his passport to a profitable engagement. In a few years a candidate for a position as miller in England, will stand a poor show for obtaining it unless he can produce his certificate of having passed the required examination at the Millers' School. Such is now the case in Germany and Austria, and doubtless we shall follow their example in this matter.

## WHEAT.

The October returns of yield per acre of wheat, estimated from results of thrashing, foreshadows a product slightly exceeding 500,000,000 bushels. The average yield per acre will not much exceed 13.5 bushels, on an acreage slightly under 37,000,000. There is a reduction of area in the spring-wheat region, and a large yield in the great winter-wheat-growing belt of the West. The six principal winter-wheat States will aggregate about 244,000,000 bushels, or nearly half the crop of the United States. The spring wheat of the Northwest may make 113,000,000 bushels. The Pacific coast crop, which has been persistently exaggerated in commercial estimates may possibly reach 45,000,000 bushels. The Middle States have produced about 40,000,000 bushels, and the Southern States slightly in excess of 50,000,000. Slight modifications may come from further investigation as the results of the harvest are more closely tested; but the total cannot be much changed, and certainly cannot be expected to enlarge the aggregate above, which requires nearly as large a yield per acre as has ever been reported in this country by census or official estimate. The average yield has never fallen quite to 10 bushels, (though very near it last year), and never has quite touched 14 bushels in years of greatest abundance. It was 12.9 in the census year, and the crop of 1880 was estimated at 13.1.

The yield in New England varies from 14 bushels in Maine to 18.7 in Vermont. It is unusually high in New York, 18.7 bushels; in Pennsylvania not quite so high, 15.5 bushels.

Delaware and Maryland secure good yields; but the South, from Virginia to the Mississippi river, though yielding better than usual, ranges 7 to 10 bushels. Arkansas and Texas do better.

Coming to the winter wheat belt of the Ohio Valley, the country north of that river averages nearly 16 bushels. Michigan and Illinois stand highest in this belt. Kentucky and Missouri promise about 14 bushels; Kansas reports the extraordinary yield of 19.5, a crop of about 34,000,000 bushels. The yield of California is apparently about 13 bushels, while Oregon and Washington are higher and more uniform in local areas.

The quality of wheat is generally good; high in the Eastern and Middle States, and approximating 100 in the South. In Illinois the average is 99; in Indiana, 97; in Ohio, 96. Some loss of quality resulted in Michigan from heating in the stack, reducing the average to 90. In West Virginia it fails to reach perfection by nine points. Iowa, in the spring wheat belt, makes lowest returns, averaging 87. Further west, and on the Pacific coast, quality is reported uniformly good.

## SCIENCE IN THE WORKSHOP.

The Trade Review says: "When mechanics as a general body become more thoroughly impressed with the conviction that the way to advancement, both as to personal position and monetary returns, lies through the mastery of science in the application of principles to their daily work, we may anticipate some joint movement on their own part to establish means for acquiring technical knowledge. We might multiply examples of the benefit of courses of scientific training. The proper understanding of the laws of expansion and contraction as applied to many castings, and even to the wrought iron and steel industries, would prevent much waste in the foundry and at the forge from the effect of unequal expansion and contraction, and also occasion fewer inequalities in the quality of that supposed treacherous material, steel. It would also prevent many mishaps to boilers, engines and their accessories in cold weather. A knowledge among workmen of the principles of inertia, as affecting bodies in motion, would frequently prevent a breakdown in starting or stopping machinery suddenly. For all connected with blast furnaces, the value of chemical knowledge is apparent, as enabling them to trace the cause of faulty results. There is scarcely a workshop of any importance in which an acquaintance with geometry will not be of value. In short, the value of science asserts itself every hour in the workshop. The scientific mechanic never falls into ruts either of thought or habit. Working more intelligently than others, he finds more pleasure in his labor. His suggestive faculties are ever at work, and he is ever alive to the possibility mechanical of improvements, from which he may reap a handsome reward. The manufacturers who have risen from the bench without acquaintance with technical science constantly feel themselves at a disadvantage. As all branches of science hold some relation to each other, the acquisition of any one portion of these will prove of value to the workman, whatever his vocation."

## WHEAT AND WHEAT BRAN.

Molescott says, that the bran contains, besides the husk, also the outer parts of the gluten cell layer (embryous membrane) it must of necessity be richer in albuminous contents and poorer in starch, than the flour. The amount of albuminous contents of wheat flour, for instance, is, on the average, 12.7 per cent., and that of wheat bran 16.3, a proportion as 1 is to 1.28. But the average percentage of starch is only 40.2 in bran, against 72.4 in flour. Also the fat, salt, and aromatic constituents are far more numerous in bran than in flour. Wheat bran contains nearly three times as much fat and five times as much salt as wheat flour. The greatest difference exists, of course, in the percentage of cellulose. Wheat flour only contains .332 per cent. against 21.163 in bran. The bran is also somewhat richer in water, having 13.8 per cent. against 12.5 per cent. in the flour.

## LATE ITEMS.

MESSRS. Heistand & Cowman of Hillsboro, O., are making numerous improvements in their mill. C. B. Slater & Co. of Blanchester O., do the work.

MESSRS. John Alt & Co. Effingham Ill., are adding rolls and increasing their capacity. C. B. Slater & Co. of Blanchester O., have the order.

MESSRS. Meeker & Barouck of Yuba, Wis., have ordered one of C. B. Slater & Co's new Process Bolting Chest with Slaters' pat. reels.

C. B. Slater & Co. of Blanchester O., are furnishing J. S. Emery of Butler, Ill., one of their triple suction Grain Cleaners.



## GARDEN CITY

## Reduction Mills and System

GATHMANN'S PATENT.

## Perfection on First Break.

Superior to most, equal to any on Subsequent Reductions.

Every grain of wheat split through the crease, and so thoroughly done that the split kernels can be brushed or scoured.

The Best and Cheapest Reduction Machine and System yet offered.

Substantial, Durable, Noiseless and Light Running, Slow Motion, Large Capacity.

## RESULTS GUARANTEED.

## TO ROLLER MILLS:

We guarantee to improve your Milling by using our First-Break Machine and System. We Split the wheat, and brush the split kernels, thereby making a greater percentage of high-grade flour than can be made under ANY OTHER SYSTEM.

## TO MILLERS:

We have fitted up in our factory a room in which we have several of our Reduction Mills running. We cordially invite you to pay us a visit, bring sample of your wheat, give our Machine a thorough test, and judge for yourselves.

## GARDEN CITY

## WHEAT BRUSH!

Gathmann's Patent "Inclined bristles"

—THE—

## ONLY DOUBLE BRUSH

Which can be set up close so that it will

## Thoroughly Brush Wheat.

Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

## Prices Reduced!

Improved Garden City

## Middlings Purifier!

## With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier.

Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

## Bolting Cloth!

Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company,

CHICAGO, ILL.

[Mention this paper when you write us]

## GRAIN GAMBLING DECISION BY THE SUPREME COURT OF WISCONSIN.

## No Comfort For Grain Speculators.

EVERINGHAM VS. MEIGHAN.

To recover balance on account—Grain Speculations—Gambling.

Defendant, a grain dealer in Cresco, Iowa, having a "regular" account with plaintiff, as a commission merchant of Milwaukee, employed the latter to buy and sell grain for him in form, for future delivery and account for profits, which latter transactions were kept separate on the books, and called in the correspondence of the parties "scalping," "deals," "options," "speculating deals," etc. This action is brought to recover a balance on such account against defendant.

Held, that such employment of plaintiff by defendant was a gambling transaction and their contracts gambling contracts within the definition and meaning of Barnard vs. Backhaus, 52 Wis. 593.

Appeal from Circuit Court, Milwaukee County.

Jenkins, Elliott & Winkler for Resp., Lyman Everingham.

Markham & Noyes for App., Patrick H. Meighan.

ORTON, J. The defendant engaged in the grain and produce trade at Cresco, in the State of Iowa, in 1876, shipped and consigned to the plaintiff, a commission merchant in the city of Milwaukee, grain and produce to be disposed of by him for the defendant, and drafts were drawn upon the plaintiff and paid by him from time to time on account of such shipments, and such shipments continued between the parties until July 1st, 1878, at which time there was a balance of \$151.80 on account of such shipments and sales in favor of the plaintiff. A short time after the commencement of this business, the defendant employed the plaintiff to buy and sell grain for him in form for future delivery, at the Chamber of Commerce in the City of Milwaukee, and to account to him for the profits thereof. This business was called by various names in the correspondence of the parties, such as "scalping," "deals," "options," "speculating deals," etc., while the former was called the "regular" business, and they were kept separate on the books and accounts. On the 1st day of July, 1878, the defendant was indebted to the plaintiff on this "scalping" account in the sum of \$2,109.64, for losses in the business. A short time before there had been a disagreement between the parties as to which should bear these losses, the defendant insisting that the plaintiff should bear the whole or part of them, and the plaintiff insisting that the plaintiff should bear the whole, and it was finally arranged, whether by compromise, settlement or concession, need not now be determined, that the scalping account should stand at \$848.20, by deducting from the whole account \$1,261.44, which sum, with the addition of \$151.80, the balance of the regular account, made \$1,000 to be thereafter paid. The parties continued their regular business of the shipment and sale of produce until 1879, with an occasional scalping transaction, and there was then a balance of \$799.02 with interest, on both accounts against the defendant, for which this suit is brought. The plaintiff charges an accounting and compromise of differences on July 1st, 1878, by which this \$1,000 was agreed to be paid. The defendant in his answer charges that said scalping business was a gambling transaction between him and the plaintiff, by which the plaintiff was to buy and sell grain for him, without receiving or delivering any such grain, and without any intention of either party that any grain should be received or delivered, but with the intention only to pay or receive the differences between the prices named in the contract and the market rate, whichever way the same might be, and that pursuant to such contracts, no grain was actually received or delivered, but such differences were so settled and adjusted, whereby the plaintiff claimed he had lost the said sum of \$2,109.64 up to July 1, 1878, and that the plaintiff deducted therefrom \$1,261.44, and that the balance of \$848.30 was to continue to be kept as an account separate from the account of the regular grain shipments. And the defendant further charged that all such pretended losses upon such gambling transactions were incurred by the plaintiff, by his failure and refusal to comply with his instructions in regard to the time and manner of purchasing and selling the grain under said gambling contracts. The testimony of the defendant clearly and positively supports his answer, and especially the allegations thereof, relating to the transactions of the parties in the purchase and sale of grain in the city of Milwaukee, and at the Chamber of Commerce, and makes the contracts of the plaintiff for such purchase and sale of grain, gambling contracts, and the employment of the plaintiff by the defendant for that purpose a gambling transaction within the definition and authority of the case of Barnard vs. Backhaus, 52 Wis. 593, and the testimony of the plaintiff rather corroborates

than denies the testimony of the defendant in this respect.

The transaction out of which these pretended losses arose and in which they were incurred, according to the testimony of the defendant, was not only illegal and void, but criminal.

The learned circuit judge gave to the jury a very long opinion concerning this transaction and boldly if not wisely criticized the opinion of this Court in Barnard vs. Backhaus, but I do not understand him to have instructed the jury that there was not evidence establishing the illegality of this claim for losses as having been incurred by gambling transactions. The instruction appears to be that, notwithstanding the original claim of \$1,109.64 for these losses was void for that reason, yet there having been differences concerning the same, it was compromised at a less sum, which became thereby a valid and lawful claim against the defendant.

The learned judge says in his opinion to the jury: "As I understand the proofs, and I don't think there is any dispute on the subject, Everingham rendered his account to the defendant and the defendant objected to the validity of it, claiming they ought to bear the whole of these losses, and that they afterwards came to the conclusion that the question of the validity of the claim should be settled between them by a compromise, the plaintiff bearing a portion of the loss and the defendant, the balance, about \$1,000. Now that, as I understand, the law makes a good compromise. It is the relinquishment of mutual claims, the one that the claim is valid, and the other that it is invalid, and their abandonment by the respective parties, and the settlement arrived at I understand constitutes a compromise. Compromises are fostered in the law." Certain parts of these sentences were excepted to by the defendant's counsel. Is it quite correct to say that there was any difference between the parties as to the validity of this claim for losses? There was no evidence whatever that the validity of the claim was questioned or considered. It was a gambling claim and both parties were presumed to know it was invalid. The only evidence as to any difference between them as to this claim was that the defendant insisted that the plaintiff ought to bear the whole or at least part of these losses, because they were incurred by his fault, and the plaintiff agreed finally to bear a large part of them, viz: \$1,261.44, and the defendant agreed to bear the balance or \$848.20. There was no question made of the real amount of the losses incurred, and no question as to their validity. It was a question who should bear them—this and nothing more. This matter is important as bearing upon the right to order a verdict in the case, and here may be found the reason why it was done; and also important because the learned counsel of the respondent makes the same point in his brief.

Suppose A employs B to bet for him at faro, or any other game of chance, and B loses a large sum of money in the game, which he has paid, and demands payment of the losses of A, and there is a difference of opinion between them as to the validity of the claim, and A finally agrees to pay one-half of it and B agrees to bear the other half of the loss himself; does this compromise make the claim legal? By all authorities and common reason it does not, for both parties are equally guilty by entering into such a gaming contract, being presumed to know that the transaction is illegal, and neither can enforce the contract or the terms of any agreement or compromise arising therefrom. In such a case, if B had won at the game a large sum of money, most certainly A could not recover it by action, or any part of it, which might be the result of a compromise of any pretended difference between them as to the validity of such a claim. Where there is no difference between the parties as to the facts which make the claim valid or invalid—legal or illegal, then there can be no basis of compromise on the question as to its validity, for both parties are presumed to know whether the claim in such a case is valid or not. It follows that this part of the opinion of the learned judge, as an instruction to the jury, is erroneous, and the point in the brief of the learned counsel of the respondent in relation to the compromise of claims of questionable validity, and the authorities cited to sustain it, are inapplicable to this case, unless there was a reasonable question and uncertainty at the time as to the validity of the claim, which there was not and could not be.

It may be proper to say here, once for all, that we are satisfied as to the correctness of the decision in Barnard vs. Backhaus, as applicable to the facts of that case, and do not believe that it requires any vindication, support or revision. Here the testimony of the defend-

ant makes just such a case. The transaction, according to his testimony, was just as clearly gambling, by betting on the differences of market prices of grain at the Chamber of Commerce, between two fixed dates, as gambling by betting at faro, poker or any other game of chance, or on a horse race, or an election, or any other uncertain and future event, and there can be no question of it in any intelligent mind, and quite likely there is not in the minds of those who operate in such "speculative deals" and the danger that such a flagrant example of gambling, so destructive to the public morals, because practiced by persons of accepted high standing and influence, consists in its being obscured by appearances of respectability and lawful contracts. It is the duty of the courts to apply the law against gambling in all cases, impartially, irrespective of the specious and seductive forms of this vice and crime, or of the social standing of those who are guilty, whether they are high or low, rich or poor, or whatever their standing in society, church or state. It is apparent that this is precisely such a case as the learned counsel of the respondent concedes in his brief to be outside of the law making obligatory claims which result from a compromise of differences between the parties. He says with his characteristic candor: "We do not claim that the compromise of an avowed and confessed illegal claim, is sufficient consideration for a promise." This compromise is not different in any respect from a compromise of gains or losses of any other kind of gambling, and to hold it different would necessitate also the holding, that this transaction is not a gambling transaction. The authorities cited by the learned counsel of the respondent and his able and plausible argument on this question, are inapplicable to this case, and only apply to a case where the claim arose from a transaction or contract of doubtful character, and which are not certainly illegal or invalid.

I will not cite the numerous authorities which hold such dealing in options or betting on market differences, are gambling transactions, for the question is at rest in this State by the decision in Barnard vs. Backhaus, and I will not cite any of the numerous and uniform authorities which hold that a compromise of any pretended differences in respect to clearly illegal contracts and transactions, cannot purge them and produce a valid claim, for the case of Melchoir vs. McCarty, 31 Wis., 262, sets that question also at rest; and it is expected that these decisions will be hereafter accepted as the law of this State without cavil or criticism by inferior courts, and it is hoped that they will be so accepted by the bar. However, the brief of the learned counsel of the appellant, in which authorities on both questions are collated, is worthy of reference.

The testimony of the defendant tended to show that after the adjustment of July 1, 1878, it was agreed that wheat thereafter shipped by him should not be applied on the scalping account, but that the balance on that account should be paid only by gains or profits on future "speculative deals," so that he could draw fully on future shipments. To this effect he says he construed the promise of the plaintiff, "I will help you all I can. I will make it back for you." This testimony would tend to show that the defendant never promised to pay absolutely any portion of the losses on former "scalping transactions." This question was also taken from the jury by ordering a verdict.

Finally, it is sufficient to say, that the circuit court erred by withdrawing the case from the jury, and by ordering a verdict.

The judgment is reversed and the cause remanded for a new trial.

## THE ORIGIN OF RYE.

An agricultural teacher, Mr. Leberecht Hanemann, of Breslau, publishes in a German agricultural paper the following interesting data of the history of the European rye:

As is well known, the true origin of our present cultivated plants with regard to their native country is absolutely mystic in nearly every case.

In the first place this is the case with our cereals and even with regard to the potatoes which were brought to England by Sir Francis Drake, from Peru; their origin is hardly known, for uncultivated potatoes have not been found anywhere in Peru, although Peru cannot exactly be counted among the unexplored countries.

The Peruvian legend tells that potatoes came to them from far away as a present of their Sun-God.

Also the origin of maize (zea) is not known. The only uncultivated plant which seems to have some relation to the maize, is the Mexi-



can teosinte (*Euchlarena luxuriant*), which indeed, according to the brilliant investigations of Professor Asherson, is somewhat like maize, although it still differs in some respects so much, that even the most stubborn Darwinian would have great doubts in the transformation of the teosinte into maize.

But not even the most clever botanist is acquainted with the country where barley, wheat, oats, and rye can be found in their original uncultivated form.

The usual botanical hand-books cite, indeed, persistently, Central Asia as the fatherland of every grain, but scientifically not the slightest proof can be brought for this assertion.

The grain samples which have been found in the Egyptian royal tombs, in the Assyrian ruins, and in the habitations of ancient river drift men are all species which must have been cultivated for a long time.

There exists, however, some Central-Asian forms which are some like our cultivated products, especially barley and wheat, but they are on the other hand only so very distantly related that a direct pedigree does not seem to be admissible, if one does not adopt that famous maxim of comparative philology according to which the consonants do not signify much and the vowels nothing at all; with such a maxim everything can be proved!

Of the rye especially no original uncultivated form was known which might have been the origin of our present *secale cereale*, although the uncultivated rye plant must have been known to "Galenus," who mentions in the descriptions of his travels that there grew in Thracia an uncultivated grain which he called "oryza."

"Oryza," or as the name was later corrupted, "Briza," reminds one in its sound of the name "rice," but the express mention of the black flour caused this sentence of "Galenus" always to be understood as referring to buckwheat (*fagopyrum*).

The proper explanation of this description of the grain by the old traveller, who always made very exact observations, has only lately been obtained through the endeavors of Professor Panic of Belgrade, who is one of the most diligent scientific collectors.

Professor Panic found, some time ago, in some of the Roumanian valleys, which have hitherto been inaccessible, a certain uncultivated grass species which he named "secale serbicum," and which is entirely identical with our present cultivated rye. The only differences are the comparative size of the grass and rye, and that "secale serbitum" is said to be perennial, whereas "secale cereale" is only annual or biennial. But it is unnecessary to tell our readers that size and longer or shorter duration of life of a plant does not form an essential scientific difference of the original and cultivated state of the same.

Until now the species "secale cereale" had quite a separate position in the family of "secale," on account of the toughness of its stem. The other species, with a somewhat similar appearance, viz. "secale montenum guss," of Sicily, "secale dalmaticum" "visiani dalmati," "secale fragile M. B.," from south-eastern Europe, have a very brittle stem during the time of ripening—a circumstance which renders their use illusory, because the corn cannot be obtained in a pure state. But "secale serbicum" has the same tough stem as our cultivated rye, and therefore the harvest of this ripe grain becomes possible. Probably the rye has only been spread through Europe from Roumania during the time of the migration of nations, and during the periods of its cultivation, it has then acquired those slight differences which are at present apparent between the "secale cereale" and "secale serbicum."

This finding of the uncultivated mother plant in the south of Europe happened quite unexpectedly, and it is very interesting so far as it demonstrates that not only a part of our leguminous plants are of South-European origin, as is known, but also that one of the most important grain varieties is no longer dependent on the Central-Asian mythical Paradise.—*Austro-Hungarian Miller.*

#### THE SLOW GRAIN MOVEMENT.

Present prices for grain are not satisfactory to farmers, who are generally disposed to delay its shipment, in order to force a rise. The general prosperity of the country, in which they share, enables them, as a rule to gratify this inclination. As a result, the currency sent out to move crops, stays out instead of returning to the city banks. This makes money scarce, interest high, speculation inactive and general trade sluggish, particularly at the East. There is no guessing how long this condition of things will last. It will continue until the movement of the crops to market

sets free the money now in the hands of elevator men and local dealers, to flow back through the hands of the local merchandise dealers, jobbers and manufacturers to the eastern banks. This will happen when the views of farmers and the market price of wheat draw nearer together. This in view of the large American surplus, and the moderate foreign demand, is hardly likely to be effected by a rise. It will probably happen when the farmer becomes convinced that prices cannot rise much higher, or when his needs overcome his hope of profit to be made by waiting. Either of these processes will necessarily be slow. The country has been taught for the last three or four years to look for a large and certain European demand for grain, and consequent high prices. The lesson will not be easy to unlearn. The change in the conditions of the foreign trade was obscured last year by the partial crop failure in America, and the consequent reduction of our surplus. This year a small foreign demand coincides with a large home surplus, and the influence upon prices is powerful and constant. Europe would like the surplus if offered at an advantageous price, in competition with the Mediterranean and Indian product. The limit of consumption has never been reached there, and low prices would create an active demand. The most wholesome thing that could happen for all interests in the United States just now, would be a general consent to market grain at prices permitting profitable export. Unless speculation interferes to prevent it, something like this will probably take place before spring.—*Northwestern Trade Bulletin.*

#### THE STEAM ENGINE DOOMED.

Whatever else may survive in the future, Dr. Siemens is certain that the steam engine is doomed. Its fate is first to be confined to driving of large dynamo machines, which will distribute force at present supplied by a myriad of small and wasteful steam engines, and then to be superseded altogether by the gas engine. Gas and electricity may be mutually hostile, but they are to unite their forces in order to extirpate the steam engine. The unpardonable sin of the steam engine is waste. Even the best of them consume two pounds of coal per horse-power per hour; whereas, says Dr. Siemens, when the gas producer has taken the place of the dangerous steam boiler, it will not take one pound of coal to develop one horse-power per hour. But before gas banishes steam it will supersede coal as the agent for the development of steam. A pound of gas gives forth exactly twice the heat of a pound of coal, and even this may be improved upon. To burn raw coal is to squander our inheritance. Dr. Siemens gave some startling figures to prove that the by-products of coal annually used in gas making are worth three millions pounds sterling more than the coal used in producing them, without allowing anything for the value of the gas. Besides the products already realized, 120,000 tons of sulphur are now wasted every year, which may yet be converted into a source of income. By abolishing the use of raw coal, Dr. Siemens maintains that science, as with some magician's wand, will "banish the black pall of smoke which hangs over our great cities, and restore to them pure air, bright sunshine and blue skies."

Nor shall we even have to suffer as compensation from the multiplication of enormous gasometers. The coal will be converted into gas at the bottom of the mine—a prospect not altogether to be contemplated without alarm by the workers in fiery seams—and the gas carried by pipes wherever it is wanted. Electricity will also be made largely serviceable for the distribution of power. Even after allowing 50 per cent. for loss in transmission, the gain is still enormous. The electric light will be chiefly confined to lighting public places. The gas light will hold its own as "the poor man's friend," and gas heating will become universal. Thus, in the near future, Dr. Siemens unfolds before our eyes a world in which there will be no smoke and no steam, and where coal will only be visible in the immediate vicinity of the pit. Electricity will light our streets, gas will cook our dinners, and driving power will be laid on by wire wherever it is wanted. There will be no pollution of rivers, for every waste product will be utilized, and the sulphurous fumes which have converted whole counties into scenes of dark desolation will be employed in making the wilderness to blossom as the rose and in restoring fertility to our exhausted soil. In short, science at last will begin to banish all the manifold abominations by which the "black age" of manufactures has defaced the beauty of our land. It is not before time.—*Pall Mall Gazette.*

#### ITEMS OF INTEREST.

THE greatest pressure in a steam boiler is at the bottom. The water adds one pound pressure for each 27 inches depth.

An English patent provides for using two sets of driving-wheels on one axle of locomotives, one set being larger than the other. On levels the large wheels run on the rails, but on inclines an extra set of rails are provided upon which the small wheels run while the large wheels revolve in the air.

A locomotive boiler, it is calculated, will last until the engine has traveled over 350,000 miles. On some lines, however, the boilers, under favorable circumstances, particularly when pure water is used, may travel 400,000 or 500,000 miles before becoming unserviceable. Assuming that the life of the engine is determined by the endurance of the boiler, and that, under favorable circumstances, it will last the 500,000 then during that time it is estimated that the fire box will probably require to be renewed at least three times, tires of the wheels five or perhaps six times, the crank axles three or four times, and the tubes from seven to ten times.

In an article by T. Bruce Warren in the *Journal of the Society of Arts*, the statement is made that very often the grease which passes into a steam boiler in the feed water does not make its appearance in the scale or mud which is thrown upon the bottom plates. He found out, however, by analysis that the floating scum from the boiler did contain a notable percentage of the fatty acids. He attributes that none of the gases was detected in the bottom scale to the decomposition of the fatty acids by the heat to which they were subjected, and the preservation of the grease at the surface to the fact that it had taken the form of an insoluble earthy soap, light enough to float.

SOME idea of the quantity of materials, especially metals, which the electric light companies consume, may be obtained from the following statement of the work of putting 5,588 Edison incandescent electric lights into the great Mills building, in New York city. The conductors consist of 1,650 feet of Edison's patent electric tubes, 628 feet of lead pipe containing taped wires thoroughly insulated, 23,658 feet of zinc tubes, 75,909 feet of wire conductors, and 24,162 feet of wooden receptacles placed between the floors, to hold the system of distributed wires. The total amount of wires used was 3,704 pounds, besides forty-eight vertical main cut-outs and 253 division cut-outs.

PROFS. WELLNER and Brun, of Austria, have recently patented a new steam engine which consists of a simple water wheel, mostly immersed in hot water in a closed vessel. Steam is admitted at the lower part, and forces the cells of the wheel upward, producing rotation. The steam fills more and more of the cells on the rising side, and at length begins to escape into the steam space above the water. Steam may either be produced directly at the lower part, or conducted to the vessel from elsewhere. The upper tube for outlet of steam may lead either into the open air or into a condenser. The mechanical work consists in the ascent of the specifically lighter steam in the heavier liquid.

THE *American Machinist* says: "Crude petroleum put into steam boilers will loosen and precipitate the scale, but will not remove it outside of the boiler and fire room. These facts do not seem to be fully realized until the boiler is burned or otherwise injured by excessive heat upon plates with which the water cannot come in contact. Boilers should in all cases be frequently and carefully washed when using substances for the prevention of scale."

An average days work for a bricklayer is 1,500 bricks on outside and inside walls; on facings and angles and finishing around wood or stone work, not more than half of this number can be laid. To find the number of bricks in a wall, first find the number of square feet of surface, and then multiply by 7 for a 4 inch wall, by 14 for an eight inch wall, by 21 for a 12 inch wall, and by 28 for a 16 inch wall.

For staining bricks red, melt one ounce of glue in one gallon of water, add a piece of alum the size of an egg, then one-half pound of Venetian red, and one pound of Spanish brown. Try the color on the bricks before using, and change light or dark with the red or brown, using a yellow mineral for buff.

For coloring black, heat asphaltum to a fluid state, and moderately heat true surface bricks and dip them. Or make a hot mixture of linseed oil and asphalt; heat the bricks and dip them. Tar and asphalt are also used for the same purpose. It is important that

the bricks be sufficiently hot, and be held in the mixture to absorb the color to the depth of one-sixteenth of an inch.

IRON VS. STEEL BOILERS.—Steel boilers are going out of favor in France and Belgium in about the proportion in which they are gaining in this country. Expert authorities in France are advising the use of iron throughout, both for present strength and durability, while Belgian engineers favor a similar course. It is argued that builders of boilers, while they will take every pains to secure the highest grade of iron for their uses, will not be careful in the selection of steel, which is, no doubt, partially due to an unfamiliarity with the latter substance. The use of a lower grade of steel in place of the highest grade of iron leads to a greater readiness to crack or scale, as well as to general corrosiveness.—*Philadelphia Iron.*

BURSTING OF A SHIP BY SWELLING OF CARGO.—The *Gazette Maritime et Commerciale*, in its news regarding ocean disasters, relates the following curious example of the formidable power of molecular forces. The Italian ship Francesca, loaded with rice, put into port on May 11, at East London, leaking considerably. A large force of men was at once put on board to pump out the water contained in the ship and to unload her; but, in spite of all activity exerted, the bags of rice soaked in water gradually, and swelled up. Two days afterward, on May 13, the ship was violently burst asunder by this swelling of her cargo.—*La Nature.*

THE RAILWAY MILEAGE OF THE UNITED STATES.—The *Railway Age* compiles from "Poor's Manual" the following table, showing the railway mileage of each State on Jan. 1, 1882, with the numerical rank of the several States in railway enterprise.

1. Illinois.....	8,326 25.	South Carolina.....	1,484
2. Pennsylvania.....	6,690 26.	Mississippi.....	1,232
3. Ohio.....	6,664 27.	Maryland and D. C.....	1,048
4. New York.....	6,279 28.	Arkansas.....	1,042
5. Iowa.....	6,113 29.	New Hampshire.....	1,026
6. Texas.....	5,344 30.	Maine.....	1,022
7. Indiana.....	4,765 31.	Louisiana.....	999
8. Michigan.....	4,284 32.	New Mexico.....	975
9. Missouri.....	4,211 33.	Connecticut.....	959
10. Kansas.....	3,718 34.	Vermont.....	916
11. Wisconsin.....	3,442 35.	Utah.....	908
12. Minnesota.....	3,391 36.	Nevada.....	890
13. Georgia.....	2,581 37.	Florida.....	793
14. Nebraska.....	2,310 38.	West Virginia.....	712
15. Colorado.....	2,275 39.	Oregon.....	689
16. California.....	2,261 40.	Arizona.....	557
17. Virginia.....	2,194 41.	Wyoming.....	533
18. Tennessee.....	1,974 42.	Washington.....	480
19. Massachusetts.....	1,935 43.	Delaware.....	480
20. Alabama.....	1,804 44.	Idaho.....	278
21. New Jersey.....	1,753 45.	Idaho.....	265
22. Kentucky.....	1,754 46.	Montana.....	232
23. Dakota.....	1,639 47.	Rhode Island.....	211
24. North Carolina.....	1,619		
Total miles.....			104,813

THE invention of Mr John Giers, of Middlesborough, is of interest, aside from its acknowledged value from an economical point of view, because it completes the series of processes by which iron ore can be converted into steel without the use of fuel beyond that required in the blast furnace. Metallurgists of the present generation have reason to look with pride upon the record of progress in this branch of their great field. To work metal from its crude shape to the finished product, without ever letting it get cold enough to interfere with further working, is something that not even the most sanguine friends of Bessemer would have predicted a few decades ago. The ore can now be charged with the fuel into a blast furnace; the molten pig, as it is tapped from the latter, can be run directly into the Bessemer converter; the ingots cast be put into Mr. Giers' new "soaking-pits," and bloomed and rolled into finished rails without burning of a single pound of fuel to keep the material hot while it is undergoing these processes. Even the steam for the blowing-engines of the furnace, and for a part of the converting and rolling machinery, can be generated by burning a part of the waste gases of the blast-furnace. Contrast this with the rows of stacks of a puddling-mill, belching forth clouds of smoke; with its melting, puddling, and reheating half a dozen times, and its handling of the intermediate products! With such achievements in the manufacture, and with an army of earnest and intelligent engineers endeavoring to solve, with the aid of science, the practical difficulties which arise in the adaptation of the product to the uses of the constructor, builder and machinist, can it be denied that the "age of iron" is fast giving way to the "age of steel"—*Engineering and Mining Journal.*

One of the queer industries of New York is gathering the stale bread from large hotels and restaurants, and grinding it up into food for poultry and pigs. The Astor House sells its stale bread for \$800 annually. The contractor has \$100,000 invested in the business and keeps nine teams at work. We are not posted on the system of reduction employed, whether stones or rolls. Certainly a purifier would be essential.



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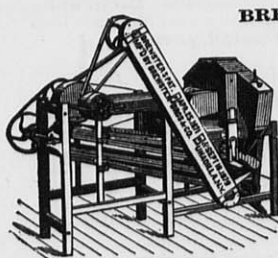
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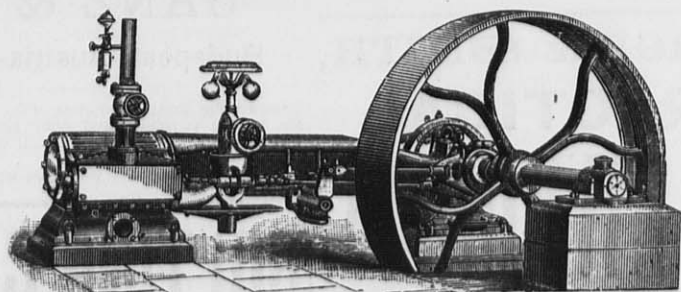
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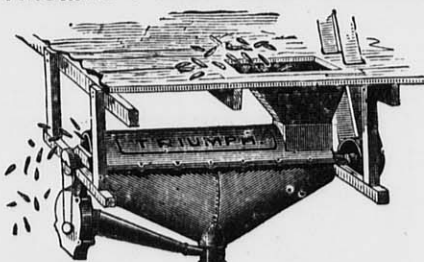
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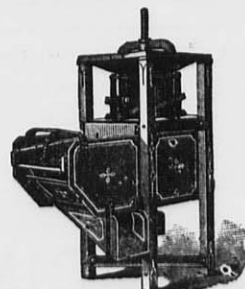
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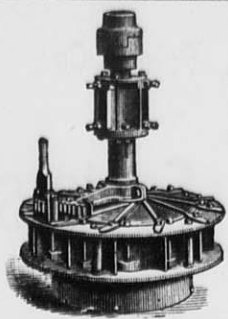
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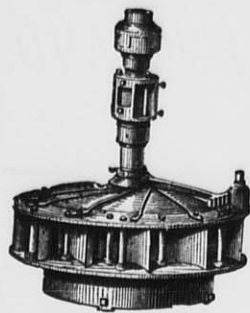
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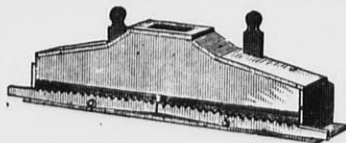
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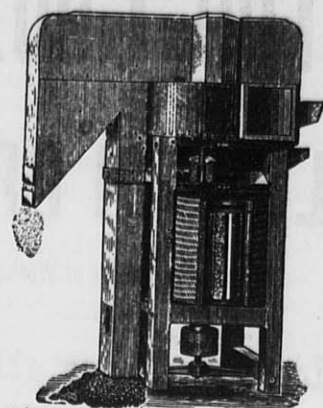
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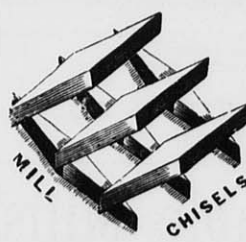
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## LUBRICATION.

BY THOS. FARMER.

In a steam engine, where many parts are moving, a large amount of friction is produced, which tends to stop those parts, and it would ultimately do it if they were not continually re-supplied with fresh motion obtained by the burning of fuel. Hence it is apparent to every one that the engine has not only to overcome the resistance of the work to be done, but also the resistance offered by its own parts. In other words, the amount of heat manifested in friction is the amount of extra heat that will have to be generated under the boiler, and the extra cost of working will be the cost of the fuel necessary to produce that heat. From the experiments of Morin, we find that the friction of a cast iron shaft upon a dry bell metal bearing amounts to .2 of the transmitted power, while with a wrought iron shaft the friction is more than .25; therefore, if such shafts were dry and unlubricated, one-fifth or one-fourth, respectively, of the total fuel cost would be wasted in overcoming friction. By careful lubrication of the same shafts, the loss may be reduced to .065 in the one case, and .089 in the other. Hence the importance of a good lubricant. One of the next essential points is that it shall be properly distributed over the surface on which it is required, that just sufficient shall be used, and all waste avoided: otherwise what would have to be spent in overcoming friction will have to be spent in buying oil. Putting aside the common characteristics of a good oil, such as the absence of acidity, either natural or artificial, and the absence of gumminess, one of the most commonly believed ideas is that an oil of high specific gravity is the best for lubricating purposes. Although this may be true in certain cases, yet from observations and experiments made over a long period, I have found that they are not always the best, and that the point upon which we must rely is the viscosity. To test this I have found a French pourette graduated into 100 c. c. to be most useful. The pourette is fitted on a stand and filled with the oil to be tested; after allowing all bubbles of the air to separate, it is permitted to run through, and the time it takes to do so is carefully noted. At the close of the experiments it will be found that the viscosities are directly proportional to the time taken; thus, if a mineral oil takes fifteen seconds, and rapeseed oil forty-five seconds, the viscosity of rapeseed oil is three times that of the mineral. The temperature may be either 60 or 90 degrees Fahr., but the latter is preferable, as the oil may be subjected to that temperature when in use. The question next arises, How is this viscosity basis to be applied? If an oil of very high viscosity, such as castor or rapeseed, were used to lubricate an engine of low horse power, we should in all probability find that instead of reducing the friction to a minimum, it would itself become a source of resistance and increase the evil. And conversely, if an oil of very low viscosity were used to lubricate an engine of high horse power, we shall find that the friction would be but slightly, if at all, reduced. Hence, when we come to look at extreme cases, we see that there exists a very marked connection between viscosity and horse power. A high viscosity is not suitable for a low horse power, and, conversely, a low viscosity is not suitable for a high horse power. And just as the case holds for these extremes, so does it hold for every point between them; the viscosity must always keep parallel to the horse power. The same rule holds with respect to machinery, and to insure perfect lubrication the viscosity must gradually increase with the ponderousness. From this it is clear that economical lubrication does not consist in procuring and using the thickest oil possible, but the oil which is best adapted to the nature of the machinery, and scientific mixing likewise consists in compounding oils most clearly adapted for the purpose for which they are to be used. It is rather difficult to say what oils are most suitable for mixing purposes, but it may be stated with a tolerable degree of accuracy, that the best method is to take a basis of American or Scotch mineral oil, 885 to 903 degrees sp. gr., and add either olive, lard, rapeseed or castor to "work up" the viscosity. Olive and lard when mixed with mineral in proportions 10, 20, 25, and so on up to 75 per cent., are about equal in value as lubricants of the lighter class of machinery. Rapeseed oil in like proportion is valuable where the machinery is of a heavier kind, or where the lubricant has to be used throughout works in which the machines vary much; but in such a case it will be better to divide them into

classes and use a special oil for each class. Castor oil mixed with mineral in varying proportions may be used in the case of the most ponderous machinery. In mixing castor I noticed a remarkable and interesting phenomenon. On adding about 25 per cent. to an American neutral oil of a reddish color, I was surprised to find, after the lapse of a few hours, that the oils had separated, and that the castor, originally quite clear, had taken down with it nearly the whole of the coloring matter, leaving the mineral oil a beautiful pale straw-colored liquid. I further found that the successive additions of fresh castor oil still further removed a coloring matter until both castor and mineral were of the same tint. Continued experiments showed that if the castor were first mixed with an equal bulk of olive or rapeseed oil, and then added to the mineral, the mixture was of a permanent character. In conclusion, I have found that a properly mixed oil is in every case far preferable for general use to either mineral, olive, lard, castor or other oil used singly, and it may be added that no oil is more suitable as a basis for mixing than mineral, and that cold mixed oils are better than those mixed at a temperature over 100 degrees.

## THE ELECTRIC LIGHT IN MILLS.

A complete installation of the electric light by means of incandescent lamps, has been successfully carried out for Messrs. Bowyer & Priestley of Buckden Mills, Huntingdon, by Messrs. Powis & Carter, engineers 60, Gracechurch-street, and Millwall Pier, London, to whom the contract was entrusted. This is one of the first mills which has adopted the electric light in the Midland Counties and even in the kingdom. The electric current for the light is generated by a Siemens continuous current machine, specially constructed so as to admit of the number of lights in circuit being diminished at will, as may be required. This machine is capable of maintaining from one to sixty lamps, each lamp consisting of a bulb of glass about two inches in diameter and containing a thin carbon filament which is hermetically sealed, and when traversed by the electric current this filament attains a white heat, and emits a soft, perfectly steady and brilliant light without being dazzling: it is slightly whiter than gas, and the most delicate shades of color can be matched just the same as by day—a decided step in advance over other artificial means of lighting. All the wires or cables through which the electric current is conveyed are very thickly insulated, and laid in such a manner, and the conductors so constructed, as to prevent all accidents of fires which are so frequently traced to the careless use of matches, oil lamps and defective gas pipes.—*Millers' Gazette, (London.)*

## REVIVAL OF THE APPRENTICE SYSTEM.

The *Manufacturers' Gazette*, (Boston) in a recent issue says: We see it stated that a manufacturing firm in this vicinity is to inaugurate a plan to secure in a few years a proper supply of machinists by a revival of the long discarded apprentice system. The firm will require fifty-eight hours work and nine hours' study per week. Those under twenty years of age will be required to work six years, and those over, five years, to complete their trade. To those who complete their full time will be paid \$400 out of a reserve fund. As we have said more than once, there is urgent need of practically educating young men in manufacturing branches. In our textile mills, for instance, how few are the native Americans employed in positions of responsibility—positions where a thorough and intimate knowledge of the details of the business is required. If we wish an overseer for a department, or a color mixer, or a dyer, we take such from across the water.

HORSE-POWER OF BELTING.—Wilkinson, in his practical manual on "Steam-Economy," has calculated a number of rules bearing on this subject from which we give the following: The writer's experience has safely confirmed a rule he learned in his youth, namely, "that a velocity of 750 feet per minute, per 1 inch of belt width, for single leather belts; or 500 feet per minute per 1 inch of double belts, will safely transmit 1 horse-power, and secure excellent economy in belting." To find the horse-power of belts, the velocity and width being given, divide the actual velocity by the velocity per horse power, as above (750 or 500 feet per minute), and multiply by the width of belt in inches, namely, for a 40-inch double belt, running 2,500 feet per minute:

$$\frac{2,500}{500} = 5 \times 40 = 200 \text{ horse-power.}$$

To find the width of belting necessary for a

given horse-power, the velocity and horse-power being known, divide the velocity by the velocity per inch, obtained as above, and divide the horse-power by the product; namely a belt running 2,500 feet a minute is required to transmit 200 horse-power. How wide should it be?

$$\frac{2,500}{500} = 5; \frac{200}{5} = 40 \text{ inches.}$$

The above rules are confined to main driving belts, have no application to shifting belts, and they cover, too, all conditions referring to angles. It is presumed, also, that under the most favorable conditions, a much higher duty than these rules give would be obtained. The Page Belting Co., of Concord, N. H., gives the following formula on belting:

Inches wide =  $\frac{\text{No. of horse-power} \times 36,000}{\text{Velocity in feet} \times \frac{1}{2} \text{ contact length in inches.}}$   
In Cooper's collection of "Facts and Figures" occurs the following:

No. of horse-power  $\times 7,000$   
Width in inches =  $\frac{\text{Velocity in feet} \times \text{contact length in feet.}}$

RULES FOR BATHING.—The Secretary of the Royal Humane Society has published the following rules for bathers. He is convinced that by the adoption of ordinary precautions many lives would be saved every bathing season:

- "Avoid bathing within two hours after a meal.
- "Avoid bathing when exhausted by fatigue or from any other cause.
- "Avoid bathing when the body is cooled after perspiration.
- "Avoid bathing altogether in the open air, if after having been a short time in the water, it causes a sense of chilliness with numbness of the hands and feet.
- "Bathe when the body is warm, provided no time is lost in getting into the water.
- "Avoid chilling the body by sitting or standing undressed on the banks or in boats after having been in the water.
- "Avoid remaining too long in the water—leave the water immediately there is the slightest feeling of chilliness.
- "The vigorous and strong may bathe early in the morning on an empty stomach.
- "The young and those who are weak had better bathe two or three hours after a meal—the best time for such is from two to three hours after breakfast."

MANAGING BELTS.—A mechanic gives the following directions for managing belts. He says: "I have for the last 25 years on every Saturday evening, turned the inner side of my engine belt outside, let the engine run slowly, and washed the belt with warm water and soda, applied with cotton waste. Next I take a piece of sheet metal and scrape the belt well, then wash with clean warm water and dry off. I collect the waste oil from the shafting and apply as much of it to the belt as possible. The washing must be done as quickly as possible, so as not to dissolve the glued parts. I let the belt stand on the pulleys till Monday, then give another scraping and turn the belt as before. I keep the pulleys very clean. I have long been surprised at the economy I have effected with very little trouble. I have not bought a new belt for the last ten years. There is an engine near me 14 inches by 36 inches, (mine is 12 by 36 inches). I have nearly double the belting and shafting, and my neighbor cannot run with less than 38 pounds of steam when all the belts are on the loose pulleys. Mine will run at full speed with 5 pounds."

HOPPER & GALLAHER's new mill at Brown-ton, Minn., started up about two weeks ago, and is now greatly driven by custom work. They have already found it necessary to enlarge a little, among other machinery adding a set of rolls.

**FEED MILLS FOR SALE 2-30 inch and 1-24 inch, Allis & Co.'s Iron Frame under Runner Feed Mills for sale. Used but a few months.**

Address, **H. P. YALE & CO.,** Machinery Dealers. Milwaukee, Wis.

## THE MILLERS MUTUAL INSURANCE COMPANY OF WISCONSIN

is now issuing Policies of Insurance on all approved applications received so far. The Company has now sufficient members to allow it to increase the risks on any one Mill from \$1,000 to \$3,000.

All matters relating to Insurance should be addressed to

**JOHN SCHUETTE, Sec., Manitowoc, Wis.**

[Please mention the United States Miller when you write to us.]

"Perhaps the most judiciously edited magazine in the world."—THE NATION, N. Y., Sept. 1882.

## THE CENTURY For 1882-3.

The twelfth year of this magazine—the first under the new name, and the most successful in its history, closed with the October number. The circulation has shown a large gain over that of the preceding season, and THE CENTURY begins its thirteenth year with an edition of 140,000 COPIES.

The following are the leading features:

**A New Novel, by W. D. Howells,** to succeed this author's "Modern Instance." It will be an international story, entitled, "A Sea Change."

**Life in the Thirteen Colonies, by Edward Eggleston.**—The leading historical feature of the year: to consist of a number of papers, on such topics as "The Beginning of a Nation," "Social Life in the Colonies," etc., the whole forming a complete history of early life in the United States. Especial attention will be paid to accuracy of illustrations.

**A Novelette of Mining Life, by Mary Halleck Foote,** entitled "The Led-Horse Claim," to be illustrated by the author.

**The Point of View, by Henry James, Jr.,** a series of eight letters from imaginary persons of various nationalities, criticising America, its people, society, manners, railroads, etc.

**The Christian League of Connecticut,** by the Rev. Washington Gladden. An account of practical cooperation in Christian work, showing how a league was formed in a small town in Connecticut, what kind of work it attempted, and how it spread throughout the whole State.

**"Rudder Grange Abroad,"** by Frank R. Stockton, a continuation of the droll "Rudder Grange" stories; the scene being now in Europe.

**The New Era in American Housebuilding,** a series of four papers, fully illustrated, devoted to (1) City Houses, (2) Country Houses, (3) Churches, and (4) Public Buildings.

**The Creoles of Louisiana,** by Geo. W. Cable, author of "Old Creole Days," etc.; a fresh and graphic narrative, richly illustrated.

**My Adventures in Zuni,** by Frank H. Cushing, government ethnologist, an adopted member of the Zuni tribe of Indians. Illustrated.

**Illustrated Papers on the National Capital,** including "The Capitol," "The Supreme Court," "The White House," etc.

**Missions of Southern California,** by "H. H.," three or four papers of an exceedingly interesting character, richly illustrated.

## Miscellaneous.

Further work is expected from E. C. Stedman, Thomas Hughes, Joel Chandler Harris, ("Uncle Remus"), Charles Dudley Warner, John Burroughs, E. V. Smalley, H. H. Boyesen, and a long list of others. Entertaining short stories and novelettes will be among the leading features of THE CENTURY, as heretofore, and the magazine will continue its advance in general excellence.

The subscription price is \$1.00 a year; 35 cents a number. Subscriptions should begin with the November number, and to enable new subscribers to commence with the new series, under THE CENTURY name, we make the following

## SPECIAL OFFER.

A year's subscription from Nov. 1882, and the twelve numbers of the past year, unbound, \$6.00. A subscription and the twelve back numbers bound in two elegant volumes with gilt top, \$7.50.

THE CENTURY CO., New York, N. Y.

"ST. NICHOLAS is above anything we produce in the same line."—LONDON TIMES.

## ST. NICHOLAS

—FOR—

## Young Folks.

PARENTS who desire entertaining and wholesome reading for their children, and young folks who enjoy accounts of travel and adventure, historical incidents, stories, pictures, household amusement, and harmless fun, will find these in ST. NICHOLAS, which is recognized by the press and public, of both England and America, as the **Best and Finest Magazine** for children ever printed. The new volume, which begins with the November number and opens with a colored frontispiece, will be much the finest ever issued, and the attention of all parents and all reading young folks is invited to the following partial list of attractions:

## "The Tinkham Brothers' Tide Mill."

A new serial story, by J. T. TROWBRIDGE, formerly editor of "Our Young Folks," and author of "The Jack Hazard Stories," etc.

## "The Story of Viteau."

An historical novelette of girl and boy life in the 13th Century. By FRANK R. STOCKTON, formerly assistant editor of ST. NICHOLAS, author of "Rudder Grange," etc.

## "The Story of Robin Hood."

An account of the famous yeoman, by MAURICE THOMPSON, author of "The Witchery of Archery."

## "The Story of the Field of the Cloth-of-Gold."

By E. S. BROOKS. To be illustrated with many remarkable pictures.

## "A Brand-New Notion"

A capital and novel play, by WILLIAM M. BAKER, author of "His Majesty, Myself," etc.

## "Swept Away."

A serial story of the Mississippi floods of 1882. By E. S. ELLIS, formerly Editor of "Golden Days."

## "Elizabeth Thompson."

A biographical paper regarding this celebrated painter of battle-scenes. Illustrated with pictures prepared for ST. NICHOLAS by Miss THOMPSON.

## "Where Was Villiers?"

A thrilling story of the Russo-Turkish war. By ARCHIBALD FORBES, War Correspondent.

## "The Boy at the Whitehouse."

An account of the life of "Tad" Lincoln. By NOAH BROOKS, author of "The Boy Emigrants."

## "Comedies for Children."

A fine series of juvenile plays. By E. S. BROOKS, author of "The Land of Nod," etc., and including

## A Christmas Masque: "The False Sir Santa Claus."

Prepared expressly for holiday times.

There will be short stories by LOUISA M. ALCOTT, and many other well-known writers for young folks; papers on home duties and recreations, out-door sports, occupation and instruction for boys and girls, with popular features and departments.

Price \$3.00 a year; 25 cents a number. Subscriptions should begin with the November Number. The succeeding issue, "The Wonderful Christmas Number" will have, also, a colored frontispiece and many unusual attractions.

THE CENTURY CO., New York, N. Y.



## NEWS.

J. L. ALLARD, Paducah, Ky., recently ordered one double 9x24 roller machine from E. P. Allis & Co., of Milwaukee, Wis.

Two double 9x18 and one double 9x24 roller machines have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by A. F. Ordway & Son, Beaver Dam, Wis.

CHISHOLM BROS. & GUNN, Minneapolis, Minn., have sent order for two pairs of 9x18 rolls, to E. P. Allis & Co., of Milwaukee, Wis.

E. P. ALLIS & Co., of Milwaukee, Wis., have just received order from O. F. Barber, Golden, Col., for two pairs 9x18 rolls.

R. RUSTON, Evansville, Ind., ordered one double 9x18 roller machine, from E. P. Allis & Co., of Milwaukee, Wis.

ONE double 9x14, and one double 9x18 roller machine, have been ordered from E. P. Allis & Co., by Ramedell & Hopkins, Tama City, Iowa.

C. A. GAMBRILL Mfg. Co., of Baltimore, Ind., have ordered three double 9x18 Gray's noiseless belted roller machines, from E. P. Allis & Co., of Milwaukee, Wis.

J. WAGNER & Co., San Francisco, Cal., have sent order for two pairs 9x14 porcelain rolls, to E. P. Allis & Co., of Milwaukee, Wis.

Two 9x14 Gradual Reduction Machines and one double 9x18 roller machine, have been ordered of E. P. Allis & Co., Milwaukee, Wis., by O. Zarges, Dugway, N. Y.

THE HUDNETTS, Terre Haute, Ind., ordered three double 9x14 Gray's noiseless belted roller machines, from E. P. Allis & Co., of Milwaukee, Wis.

Two pairs of 9x18 Rolls, have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by the Richmond City Mill Works, Richmond, Ind.

ONE 9x24 Gradual Reduction Machine, and one Double 9x18 Roller Machine, have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by Aylsworth & Co., Fostoria, Ohio.

H. J. KLINGER, of Butler, Pa., has ordered two pairs Rolls, 9x18, from E. P. Allis & Co., of Milwaukee, Wis.

MILTON E. BIGGS, of Frederick, Ind., has ordered two pairs of 9x18 Rolls, from E. P. Allis & Co., of Milwaukee, Wis.

SNIVELY & HEDGER, of Wathena, Kans., have ordered four of Gray's Double Noiseless Belted Roller Machines, from E. P. Allis & Co., of Milwaukee, Wis.

Two pairs of 9x18 Rolls, have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by Thos. Keppel & Son, of Zeeland, Mich.

F. RICHARDS, of Elgin, Ill., has recently ordered two Gradual Reduction Machines, and one Double Roller Machine, from E. P. Allis & Co., of Milwaukee, Wis.

E. P. ALLIS & Co., of Milwaukee, Wis., have received the order for two pairs of 9x18 Rolls, in Gray's patent frame, from Knoebel Bros., Belleville, Ill.

WILFORD & NORTHWAY, of Minneapolis, Minn., sent order for three Double Gray's Noiseless Belted Roller Machines, to E. P. Allis & Co., of Milwaukee, Wis.

A Double 9x18 Porcelain Roller Machine has been ordered from E. P. Allis & Co., of Milwaukee, Wis., by R. Ruston, of Evansville, Ind.

E. P. ALLIS & Co., of Milwaukee, Wis., have just received an order from the Cocker Separator Mfg. Co., of same city for four Double 9x18, and four Double 9x14 Gray's Noiseless Belted Roller Machines.

ELK HORN MILL CO., of Booneville, Ind., have ordered one pair of 9x18 Porcelain Rolls, from E. P. Allis & Co., of Milwaukee, Wis.

ONE Double 9x14 Roller Machine, has been ordered from E. P. Allis & Co., of Milwaukee, Wis., by D. W. Dinins, of Etna Green, Ind.

DOW GILMAN & HANCOCK, of Davenport, Iowa, have just ordered four Double 9x18 Gray's Noiseless Belted Porcelain Roller Machines, from E. P. Allis & Co., of Milwaukee, Wis.

Two Double and two Single Roller Machines, have just been ordered from E. P. Allis & Co., of Milwaukee, Wis., by G. W. Todd & Co., of St. Louis, Mo.

F. E. HECKEL, Millville, Iowa, recently sent order for two pairs of 9x14, and one pair of 9x18 Rolls, to E. P. Allis & Co. of Milwaukee, Wis.

ESTES WOODS & WRIGHT, of Iowa Falls, Iowa, just ordered two Gradual Reduction 9x18 Machines, one Double, and one Single Roller Machine, Gray's Noiseless Belted, from E. P. Allis & Co., of Milwaukee, Wis.

CHISHOLM BROS. & GUNN, of Minneapolis, Minn., have sent further orders for twenty Double 9x18, and four Double 9x14 Gray's Noiseless Belted Roller Mills, to E. P. Allis & Co., of Milwaukee, Wis.

Two Double 9x14 Roller Machines have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by the Iowa Iron Works Co., Dubuque, Iowa.

F. S. JOHNSON & Co., Milford, Neb., have just sent order to E. P. Allis & Co., of Milwaukee, Wis., for one Double 9x24 Roller Machine.

THE order for 2 Gradual Reduction Machines, one 9x18, one 9x24, one Double Roller Mill 9x24, and 2 Double Roller Mills 9x18, has been placed in the hands of E. P. Allis & Co., of Milwaukee, Wis., by D. & A. Luckenback, of Bethlehem, Pa.

GEO. WALL, Stacyville, Iowa, has purchased one 9x14 Gradual Reduction Machine, and 2 double 9x14 Roller Machines from E. P. Allis & Co., of Milwaukee, Wis.

E. P. Allis & Co., of Milwaukee, Wis., are fulfilling the order of Hinman & Ward, Battle Creek, Iowa, for 3 Double 9x18, and 3 Double 9x24 Roller Machines.

W. PAGLE, of Aldin, Iowa, has given his order for 2 9x14, Gradual Reduction Machines and one Double 9x18 Roller Machine, to E. P. Allis & Co., of Milwaukee, Wis.

ONE Double 9x18 Roller Machine has just been ordered from E. P. Allis & Co., of Milwaukee, Wis., by A. C. Godshall & Bro., of Lansdale, Mich.

H. S. BARRY & SON, Waukegan, Ill., have sent order for one Double 9x14 Roller Machine, to E. P. Allis & Co., of Milwaukee, Wis.

CHISHOLM BROS. & GUNN, of Chicago, Ill., sent order to E. P. Allis & Co., of Milwaukee, Wis., for one Double 9x24 Gray's Noiseless Belted Roller Mill.

THE order for 8 Double 9x18 Gray's Belted Noiseless Roller Mill, has been placed in the hands of E. P. Allis & Co., of Milwaukee, Wis., by G. F. Gandolfo, Dubuque, Iowa.

GEO. SPRAGUE, of Waterford, N. Y., has ordered two Gradual Reductions Machines, one 9x18, one 9x24 and 2 Double Roller Machines, one 9x24, one 9x18, from E. P. Allis & Co., of Milwaukee, Wis.

THE order for 8 Double 9x18, one Double 9x24 and one Double 9x14 Roller Machines, all Gray's patent Noiseless Belted, has just been received by E. P. Allis & Co., from Richards & Butler, Indianapolis, Ind.

CAMP SPRING MILL CO., St. Louis, Mo., has ordered one Double 9x24 Roller Machine, from E. P. Allis & Co., of Milwaukee, Wis.

Two pairs of Rolls, 9x14, have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by the Hanover Mfg. Co., Hanover, Ill.

C. A. GAMBRILL Mfg. Co., Baltimore, Md., sent order for 2 Double 9x18 Gray's Noiseless Belted Roller Mills to E. P. Allis & Co., of Milwaukee, Wis.

E. P. ALLIS & Co. of Milwaukee, Wis., have received a further order for one Double 9x18 Roller Machine, from J. B. A. Kern, of Milwaukee, Wis.

THREE Double 9x18, and 2 Double 9x24 Roller Mills, Gray's Patent Noiseless Belted, have just been ordered from E. P. Allis & Co., of Milwaukee, Wis., by M. T. Boulton, of Appleton, Wis.

GREAT WESTERN MFG. CO., of Leavenworth, Kans., sent order for two 9x24, and one 9x30 Roller Machines, to E. P. Allis & Co., of Milwaukee, Wis.

A recent letter from the Atlas Engine Works, of Indianapolis, Ind., says: We are running full handed, and have orders amounting to about 25 carloads, which will be shipped within the next 10 days. Among some of the outfits might be mentioned: 75 H. P. Engine for St. Louis; 100 H. P. Engine for New York City; 100 H. P. Engine with boiler complete for Cumberland, Md.; 125 H. P. Atlas Corliss Engine with boilers complete for Creston, Ohio; 150 H. P. Atlas Corliss Engine complete with boilers for Memphis, Tenn.; 4-90 H. P. Boilers for Council Bluffs, Iowa.

AMONG some of the shipments recently made by the Atlas Engine Works, of Indianapolis, Ind., were: 150 H. P. Engine for the Hanauer Oil Co., of Memphis, Tenn.; 200 H. P. Engine for Cuba; 250 H. P. Engine for the Sandwich Islands.

George Eymen has secured a desirable mill site at Sterling Mich., and has placed his order for a fine flouring mill outfit with Nordyke & Marmon Co., of Indianapolis, Ind.

A new flouring mill will be erected at Scottsboro, Ala., by Mr. W. W. Grantham.

Kearney, Neb., will soon be "fixed" in the flouring mill line, Mr. J. L. Sizer having contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for an outfit to be set up at that place.

A three-run mill is an assured thing at Big Springs, Ky., thanks to the efforts of Mr. McMeader, a prominent merchant at that place. The machinery for this mill is being made by Nordyke & Marmon Co., of Indianapolis, Ind.

BURNED, Oct. 6, Bryson, Wayne & Co's. mill at Lowellville, O., Loss \$30,000. Insurance \$12,000.

WM. SNIDER & Co., Waterloo, Ont., have the new extension to their flour mill almost finished, which is 46 by 46 feet and five stories high. This enterprising firm are making arrangements with Goldie & McCulloch of Galt, for seven more roller mills similar to the ten which are at present in use. The full capacity of the mill when complete will be 200 barrels per day.

MESSRS J. & E. WISSEM, of Salem, Ont., have changed their mill to the roller system and expect to start in a few weeks. They have four double sets of rollers, two chests of four reels each, three purifiers two run of stone, scalpers, dust and grading reels, smutter, bran duster &c. &c., and power sufficient to grind 150 barrels of flour per twenty-four hours. The millwright is John Maier, of Waterloo, Ont., and the rollers and machinery were made by Goldie & McCulloch, of Galt, Ont.

VIROQUA, Wis., is to have a grist mill.

THE LAWSON Canal at Neenah, Wis., to control the flow of water, from Lake Winnebago, will be 200 feet wide, and 2,000 feet long.

H. F. Smith of Neenah, Wis., has purchased B. Miller's mill at New London, Wis., for \$7,000. It is a steam mill, with a capacity of about fifty barrels per day.

THE following parties have bought the well-known Galt Combined Brush and Smutter, made by the Eureka Manufacturing Co., of Rock Falls, Ill.: Holloway & Satterfield, Eddyville, Ky.; Alphonso Brown, Darlington, Mo.; J. Atkinson, Greenwood, Neb.; J. P. Reed, Freeport, Ill.; P. & A. Flynn, Ramey Sta., Pa.; S. Clinton, Weeping Water, Neb.

THE following well-known MillFurnishers and MillBuilders put the BeckerWheat Brush in their contracts, and have lately sent us orders for their machines: Nordyke & Marmon Co., Indianapolis, Ind.; Richmond City Mill Works, Richmond, Ind.; B. F. Gump, Chicago, Ill.; Fleniken & Graham, Dubuque, Iowa; E. P. Allis & Co., Milwaukee, Wis.; Oscar Oexle & Co., Germany; A. Dehner & Co., St. Louis, Mo.; Iowa Iron Works, Dubuque, Iowa; Nordyke Mill Works, Kansas City.

THE following mills and millers have bought the Becker Cone-shape Wheat Brush the past month, made by the Eureka Manufacturing Co., of Rock Falls, Ill.: Cunningham, Cartwright & Watkins, Goodlettsville, Tenn.; David Russell, Sweetsboro', N. J.; W. F. Carter, Weathersford, Texas; Independence Mill Co., Independence, Iowa; W. M. Yeazell, Springfield, Ohio; C. Seely, Crete, Neb.; J. W. Truax, Belle Haven, Neb.; H. C. Waite, St. Joseph, Mo.; Rob't Mooney, New Albany, Kansas; J. Stoltz & Co., Pekin, Ill.; Weathershold & Penrose, Industry, Ill.; R. E. Roberts, Belle Creek, Neb.; Oconomowoc, Mill Co., Oconomowoc, Wis.; John G. Schaupp, Grand Island, Neb.; Warren Adams, Cutler, Ind.; C. Link & Son, Charleston, Ill.

BURNED—Oct. 18, Troost's large flouring mill at Minnesota City, Minn. Loss \$70,000; Insurance \$4,000. The mill will, in all probability, be rebuilt as quickly as possible.

A cablegram announces another English mill disaster. The mill of William Baker & Sons, Bristol, has burned, causing damage to the amount of \$250,000. The senior partner in the firm, William Proctor Baker, recently delivered a most important address on flour milling before the London Institution of Civil Engineers.

HENRY MCGOVERN, a young man employed in J. Schuette & Bros flouring mill, at Manitowoc, Wis., was caught by an upright shaft, while oiling it, and before the machinery was stopped he was whirled around several times. His body struck a post at each revolution, and both his arms and legs were broken, and he received other injuries which leave but little hope of his recovery.

The largest steel spring ever made in the world was successfully rolled at Kloman's Steel Works, Pittsburgh, for the U. S. Car Motor Co. of Philadelphia. It is 310 feet long six inches wide and one quarter of an inch thick. It will be tempered and coiled by the Motor Company at their works in Philadelphia, and exhibited in the bi-centennial parade.

David Barbour has been arrested for defrauding his employers, Marshall, Kennedy & Co., of Pittsburgh, of \$30,000 to \$40,000. Barbour's method of robbing his employers was quite simple. It was a rule of the firm that all city deliveries should be cash; Barbour would have a wagon loaded with, say, twenty barrels of flour, he would make the collections and would only enter on the books

an account for twelve barrels. As a matter of course, the cash collections would appear correct, and Barbour would pocket the amount collected on the other eight barrels. He has in this manner stolen between \$30,000 and \$40,000. It is asserted that Mr. Barbour, on a salary of about \$1,200 a year, has saved sufficient to invest in government bonds to the extent of some \$60,000.

THE "Hoosier State Mills," Indianapolis, Ind., is the only all-roller-mill in the State. They were built in 1881, Mr. Jno. Webster, of Detroit, Mich., furnishing the plans and machinery. The capacity is 350 barrels per day, power being transmitted through an Atlas-Corliss 150 horse-power engine. Stevens rolls are used exclusively.

The old flouring mill on the Des Plaines river in Lockport, Ill., together with sixty acres of land has been sold by Dr. J. F. Daggett to J. L. Norton, for \$12,000. On this property is one of the finest water powers in Illinois, having as its feeder the whole of the river; also the water from the Illinois and Michigan canal, used by Norton & Co., and the entire surplus water discharged from the canal, as it all passes from the hydraulic basin into the river where it can be utilized.

Frank Yaeger, of Milwaukee has purchased a third interest in the flouring mill at Elba, Wis.

Seay & Ragan, Rome, Ga., have put in two 9 x 18 Rolls furnished by the Case Manufacturing Co., Columbus, O. The Case Manufacturing Co., Columbus, O., are putting in Rolls for W. H. Childs, Abilene, Kan.

G. Frick, Chillicothe, O., has put in the Little Giant Break machine, manufactured by the Case Manufacturing Co., Columbus, O.

The Case Manufacturing Co., Columbus, O., have furnished Bellamy & Rittener, Gourack, Kan., with some new machinery.

J. S. Bristol, Auburn, N. Y., is putting in Rolls, Break machines and Scalper, furnished by the Case Manufacturing Co., Columbus, O.

G. W. Goudy, Rogersville, O., has put in a set of 9 x 18 Smooth Rolls, furnished by the Case Manufacturing Co., Columbus, O.

W. G. Beed, Hampton, Iowa, has put in Smooth Rolls, furnished by the Case Manufacturing Co., Columbus, O.

J. W. Gift & Co., Peoria, Ill., have put in another Break machine, furnished by the Case Manufacturing Co., Columbus, O.

The Case Manufacturing Co., are furnishing W. H. Cooper & Son, Wesleyville, Pa., with some new machinery.

David & McConnell, Sharon, Pa., are putting in Rolls, Break machine and Scalper, made and furnished by the Case Manufacturing Co., Columbus, O.

Jonathan Greyson, Austin, Minn., has placed his order with the Case Manufacturing Co., Columbus, O., for Rolls, Breaks, Scalping Reels, for a gradual reduction mill on the Case system.

J. P. Felt, Emporium, Pa., visited Columbus a few weeks ago, and left his order with the Case Manufacturing Co. for Rolls and Break Machine.

Simon Gebhart & Sons, Dayton O., will start up again in a few days, on the Case system of gradual reduction, furnished by the Case Manufacturing Co., Columbus, O.

The Castalia Milling Co. Castalia, O., have placed their order with the Case Manufacturing Co., Columbus, O., for Rolls, Breaks, Purifiers, Scalping reels &c., for a full gradual reduction mill, on the Case system. They are throwing out four pairs four-feet Burrs, and will reduce entirely on Rolls.

The Case Manufacturing Co. Columbus, O., have furnished James Rodgers, Litchfield, Ill., with their first Break and Scalper.

M. J. Wheeland, Port Washington, O., is putting in machinery furnished by the Case Manufacturing Co., Columbus, O.

Colman & Haun, Homer, O., have placed their order for a full gradual reduction mill on the Case system, with the Case Manufacturing Co., Columbus, O.

The Case Manufacturing Co., Columbus, O., are putting in smooth Rolls and Scalping reels for the New London Mill Co., New London, Minn.

Smith, Hill & Co., Quincy, Ill., have ordered a line of Rolls and Break machines for the mill they have in charge at Macon, Mo., from the Case Manufacturing Co., Columbus, O.

The Case Manufacturing Co., Columbus O., have taken a contract from Brissenden & Bros., Louisville, Ill., for Rolls, Break machines, Purifiers, Scalping reels, &c., for a full gradual reduction mill on the Case system.

There was a premium offered at the Ohio State Fair, the Delaware Co., O., Fair, and the Marion Co. O., Fair for the best Bread. The Bread that carried off the First Premium from all three of the above Fairs, was made of the Flour from J. B. Miller & Co's mill, Ashley, O., who is running on the Case system of gradual reduction.

The Enterprise flour mills at Memphis, Tenn., were burned Oct. 21. Loss \$30,000. Partially insured.

**"HARVEY" CHICAGO**

Is the Largest Clothing House west of New York. They can clothe you and yours for

**One-third less than your Tailor can at Home!**

**SEND THEM YOUR ADDRESS FOR SAMPLES, PRICE LIST, CHART OF FASHIONS AND MEASUREMENT INSTRUCTIONS.**

Goods sent on approval. They want your trade; will do everything to please you; and their large capital and thirty years' experience gives them advantages over stores of ordinary or even large size. No other house compares with

**HARVEY, STATE STREET, CHICAGO.**

[Mention the United States Miller when you write to us.]



A large flour barrel manufactory is being built at Indianapolis, in which complete barrels will be made by machinery as far as possible. The heavy shafting, pulleys and other machinery are being made by Nordyke & Marmon Co., of the same city.

Nordyke & Marmon Co., of Indianapolis, Ind., are working on machinery for nineteen complete roller mills, ranging in capacity from 80 to 400 barrels per 24 hours. In addition many mill outfits using millstones are being constructed by them.

W. A. & C. S. Schofield's roller mill, north of Indianapolis, Ind., is about ready to start up. The mill has been entirely remodeled with machinery made by the Nordyke & Marmon mill works, and now makes a fine showing. It also has one of the finest mill-dams in the west.

The 200-barrel hominy mill at Indianapolis, Ind., recently built by Nordyke & Marmon Co. for C. F. Hall & Co., has been so overrun with orders since starting up, that immediate arrangements are being made to increase its capacity to 300 barrels under the direction of the original builders.

The Nashville Cooperage Co. are putting a new steam outfit in their works, at Nashville, consisting of a pair of 16-inch engines and three 60-inch x 14-foot boilers, with fixtures complete, all built at the Atlas Engine works, of Indianapolis.

Messrs. J. F. & Monroe Seiberling have contracted with Mr. William Faist, the genial representative of Edward P. Allis & Co., of Milwaukee, Wis., for the machinery and engine for their new mills, now in process of construction in the Sixth ward.

Messrs. Allis & Co. are the largest manufacturers of milling machinery in the United States, and are consequently able to compete with any firm, and obtain contracts which others could not, particularly as they hold patents on some of the finest mill machinery made, such as Gray's noiseless roller mill and Wegmann's porcelain rolls.

Their contract with the Seiberling Bros. amounts to nearly \$50,000, and is for machinery similar to that made some time ago by the same firm for Commins & Allen's stone mill, which is now considered as about the finest in the State. The mill will be a large roller one, of 600 barrel capacity, driven by a Reynolds-Corliss engine of 300 horse power, also furnished by Allis & Co.

The new mill, when completed will be one of the best equipped and altogether one of the best mills in the United States, which in milling now leads the world, and will add greatly to the fame of Akron as an important milling center.—Akron (O.) Daily News.

The Pillsbury A mill recently made 5107 barrels of flour in one day, (24 hours).

Hon. M. L. McCormack, mayor of Grand Forks, Dak. and proprietor of the new roller mill at that place, was married Oct. 3, at St. Paul, Minn., to Miss Adele A. Lyons.

THERE are eight oat meal mills in Iowa. They are located as follows: Cedar Rapids, Coralville, Davenport, Des Moines, Dubuque, Iowa City, Muscatine and Ottumwa. The Cedar Rapids mill, Douglas & Stewart, proprietors, is said to be the largest in the United States.



**Phoenix Foundry & Machine Works**  
TERRE HAUTE, INDIANA, U. S. A.  
**MANUFACTURERS AND MILL BUILDERS.**  
JONATHAN MILLS, General Manager.

**OUR OWN MANUFACTURES.**  
UNEQUALLED FOR QUALITY, STYLE AND FINISH.  
*Engines, Shafting, Pulleys, Gearing, Bolting-Chests, Hurst-Frames, and all Flour Mill Iron and Wood Work.*

**OUR STANDARD MACHINES.**  
**Jonathan Mills Phoenix Rolls.** Single or Double, Smooth or Corrugated. Positive hemp rope drive. In every feature an improvement over all competitors. No running together of Rolls. Feed Rolls dispensed with.  
**Phoenix Reduction Machine.** SIX BREAKS in one substantial iron frame. Compact, durable, light-running, with six Centrifugal Reels—one for each break. An aspiration on each reduction. The most complete concentrated mill ever invented. Indispensable for mills having a capacity of from one to ten barrels per hour.  
**Centrifugal Bolting Reels.** Single, Double or Triple. Bristling with Improvements.  
*No Oil ever Required on any of above Machines.*  
**Jonathan Mills Gradual Reduction and Degerminating Machines.** Of World-wide Fame.  
*The Finest Line of Machines in the World.*  
**Orders Promptly Filled FOR LION BRAND BOLTING CLOTH,** by the Piece, cut or made up to fit any size reel.  
We will furnish you anything required at reasonable prices. We keep every kind of Furnishing in stock.  
Plans and Programmes Furnished, and complete Mills Built and Started on the Gradual Reduction, Stones or Roller systems or a combination of any.  
**Write for Information.**



The new Columbia mill, owned by Zeidler & Zimmerman, Minneapolis, will start up Nov. 1.

A new grist mill is being erected by M. W. Merrill, on Club river about a mile and a half from Richmond, Utah. It is of frame, and will when finished, be a first-class mill in every respect, furnished with the latest improved machinery. It is 20 x 54 feet in size, and 27 feet high to the square. It will be in operation by about November 12th.

Miss Helen M. Carson, of Louisville, Ky., at 22 married a wealthy miller named Gordon, whose age was about 60, anticipating that they would live in accordance with his means; but instead of that he rented one room in a cottage for their occupancy, and restricted her expenditures in other respects in proportion; wherefore she sues for divorce, alimony and her maiden name.

ARTICLES of Incorporation of the Washburn Mill Company were filed in the Register's office at Minneapolis, recently. The general nature of the business is to be the purchase, manufacture and sale of logs and lumber, and all articles that may be manufactured therefrom; the purchase and sale of timber lands and other real estate; and to build, buy, sell, lease, own and maintain and operate mills, elevators and warehouses, and to carry on a general lumber, grain, flour and feed business. The principal place of business is to be at Minneapolis, and the commencement of the corporation January 1, 1883. The capital stock is to be \$500,000, which is to be paid in when the corporation commences. The highest amount of indebtedness is to be at no time more than the capital stock. The incorporators are William D. Washburn, William D. Hole, Joseph E. Stevens, Jr., Willard G. Hollis, of Minneapolis, and Caleb C. Crane, of Anoka. The directors are the incorporators, and the shares of capital stock are placed at one thousand shares at \$50 each. The annual meetings of the incorporation are to be held the first Tuesday in February of each year.

The large flouring mill at Minnesota City, Minn., owned by Mr. Otto Troost, has been destroyed by fire. His dwelling house near by was only saved by protecting it with wet carpets and blankets. The mill was originally built as a water-power mill in 1865, and a new part was added in 1871. With the increase of the business steam power was added. The mill was a four-story frame building, with additions two and a half and three stories in height, the whole being 52x82 in size, with a brick boiler and engine house 13x40. Its capacity was from 300 to 350 barrels of flour per day, the motive power being a Reynolds-Corliss engine of 150-horse power, with water power as auxiliary. It was furnished with the latest approved mill machinery, having been transformed within the last two years into a complete roller process mill. New machinery has lately been added and the whole mill placed in readiness for manufacturing, with favorable auspices under a new management, on the present crop. On the 28th of December, 1878, the mill was leased to Messrs. G. W. van Dusen & Co., of Rochester, and has been operated under that lease up to this fall, Mr. Troost having the superintendency. On the 18th of September last the mill was leased to Messrs. A. G. Mowbray & Co., of Winona. Mr. Otto Troost retaining the office of superintendent. Mr. Troost valued the property at \$60,000, and there was insurance to the amount of \$42,500.

## An Immense Success—Read it! Read it!

Over one year in operation, giving same satisfaction as when first started.—Fully Guaranteed.—No Filling up of the Cloth.—No experiment any more. Try it and Satisfy Yourself.—It is the only one which gives Satisfaction.—All the Leading Mills are adopting our Machines.—An Important Problem solved at last; taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

# PRINZ DUST COLLECTOR

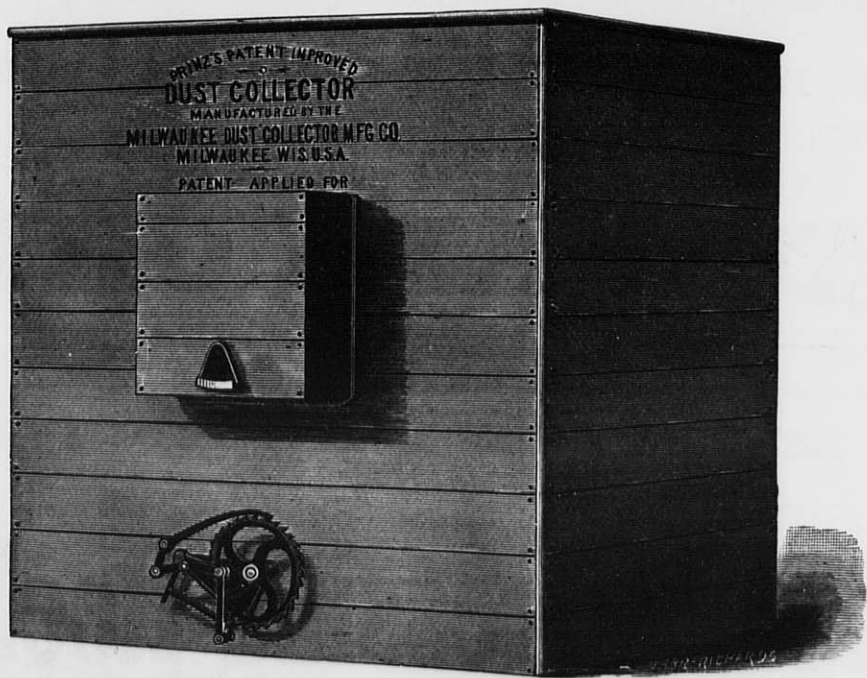
After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

**Simplicity is a Leading Feature in this Machine.**

**No Dead Air Chamber.**—The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBERS.

**Less Power is used with this machine than any other as there is no back pressure on the fan; the motion of the fan has to be reduced whenever this machine is applied.**

**It does away with the cumbersome dusty, dirty old-fashioned dust room, en-**



tirely, and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

**It Retains the Dust in the Mill,** thus allowing no waste of stock by being blown out into the air as is the case with the old-fashioned dust room.

**It does away with the liability of dust explosions,** as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers **GUARANTEE ENTIRE SATISFACTION** in the use of this machine.

Our machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties against purchasing infringing machines.

## LOW PRICES FOR EXCELLENT MACHINES.

### TESTIMONIALS.

#### MILWAUKEE DUST COLLECTOR MFG. CO.

Gentlemen: We have been using the Prinz Dust Collector for the past year. We consider the machine a great success. It does its work well at all times.

Very truly,

E. T. ARCHIBALD & CO.

Sparta, Mich., Oct., 18, 1882.

#### Milwaukee Dust Collector Mfg. Co.

Gentlemen:—We have given the Dust Collector received from you a fair trial and are highly pleased with it. We believe it saves us a barrel of Flour a day, (24 hours,) from three run of stones which will soon pay for it.

Yours respectfully,

SPARTA MILLING CO.

#### Milwaukee Dust Collector Mfg. Co.

Gentlemen:—Yours of the 6th at hand and noted. We shall want more of your machines as soon as we can get time to put them in, as we regard them a success. In fact they are the best machine of the kind on the market.

Yours,

THORNTON & CHESTER.

St. Louis, Mo., Oct. 11, 1882.

#### Milwaukee Dust Collector Mfg. Co., Milwaukee, Wis.

Gentlemen:—The "Prinz Dust Catcher" on our No. 2 Smith's Purifier has now been in

steady operation for 30 days and works satisfactorily in every way; the machine has no connection with any room and dust room; the fan blows direct into the mill without any visible signs of dust; it deposits from 75 to 80 pounds in a barrel in 25 hours, being all the refuse matter from the purifier; another machine has arrived; will attach it to a Garden City Purifier and have it in operation in a few days.

Yours respectfully,

HEZEL MILLING CO.

Spring Valley Ohio, Oct. 12, 1882

#### Milwaukee Dust Collector Mfg. Co.

Gentlemen:—We have in use one of your Dust Collectors. We are entirely satisfied with its work and would not exchange it for any machine of its class we know of.

Yours respectfully,

BARRETT & SON.

Owensboro, Ky., Sept. 29, 1882.

#### Milwaukee Dust Collector Mfg. Co.

Gentlemen:—The machine you shipped us some time ago reached us the forepart of this week and was put in successful operation to-day. It starts off all right and we hope will continue to work well.

Your truly,

W. J. & L. LUMPKIN.

Hastings, Minn., Oct. 19, 1882.

#### Milwaukee Dust Collector Mfg. Co.

Gentlemen:—We have now been running your Dust Collector about 10 days and are well pleased with it. If we had room would put in more.

Yours truly,

CHAS. ESPENSCHIED.

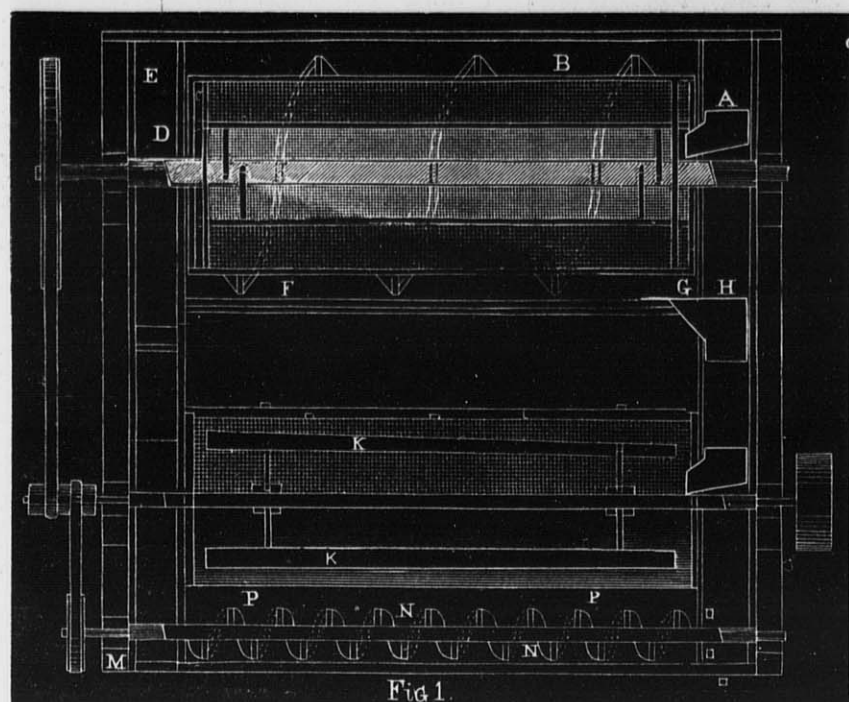
## Milwaukee Dust Collector Mfg. Co.,

Milwaukee, Wis.

[Please mention the United States Miller when you write to us.]



# THE CENTRIFUGAL ERA.



The Centrifugal system creates a new epoch in milling machinery, and is rapidly becoming popular and indispensable, gradually supplanting the old system as it goes marching along, and so we take pleasure to introduce the Excelsior

## CENTRIFUGAL

## Flour Dressing Machine.

(Frank Andree's Patent, Sept. 20th 1882.)

FIRST PREMIUM AND DIPLOMA AT MISSOURI STATE FAIR, ST. LOUIS, OCT. 5, 1882.

Our New Double Reels { One for Scalping Bran. One for Bolting Flour. } Our New Double Iron Conveyors { To Convey and Re-Convey. }

Our Two Bolting Frames { To which the cloth is attached, and by having two sets of frames, of different numbers, they can be changed in sixty seconds; a great convenience to millers. }

Our Great Feature { The bottom reel frame is composed of Zinc instead of Cloth, so that the Bolting Cloth, in the two upper frames, escapes actual wear and tear; hence the expense on cloth is merely nominal the year round, which is very agreeable to millers. }

Our Reels excel any other for re-bolting low grades of Flour; handling lumpy and impure material; dusting middlings and Bran; flattening germ stuff; finishing tailings and cut-off; bolting chop from any rollers; separating break-flour; redressing and mixing flour, and they are especially valuable in finishing patent flour.

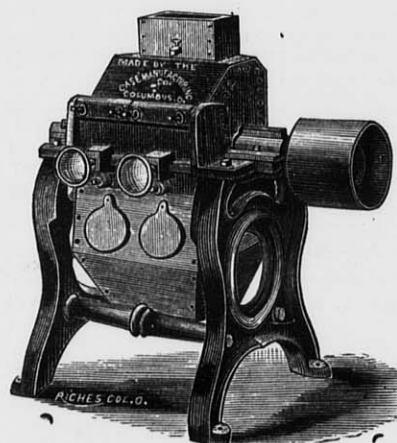
Our Reels have a capacity three times greater than the common cylinder; they take up less space; make a cleaner and whiter flour; leave less waste and are less expensive.

For information and reference apply to

**FRANK ANDREE & COMPANY,** SOLE MANUFACTURERS, **330 E. DIVISION STREET, Chicago, Ill.**

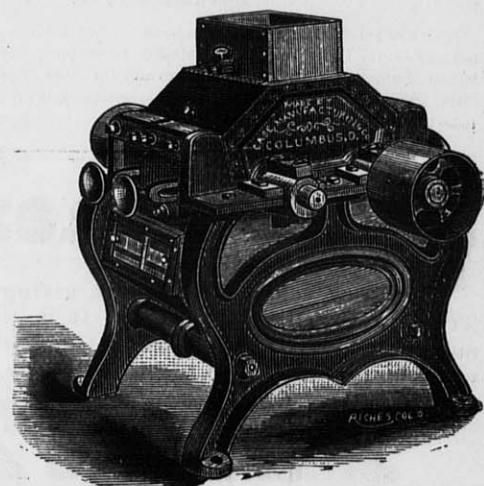
[Mention the United States Miller when you write to us.]

## IN THE CASE SYSTEM OF GRADUAL REDUCTION.



Single Break Machine, capacity 5 to 60 bushels per hour.

The first three reductions are made on Break Machines, not Rolls—all intelligent experience proves that Breaks are better than Rolls on the earlier Reduction. In proof that our system is the least complicated, least expensive and most successful we can refer to many Mills all of which are running on our full system in the following states, viz:—New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Dakota, Iowa, Missouri, Kansas, Tennessee, etc., etc. We furnish the complete out-fit of Breaks, Rolls, Purifiers, (we make the unrivalled Case Purifier,) Reels, etc. Our Chest of Scalping Reels is the neatest and most convenient made. Millers wanting a complete system or a good Roll or Purifier are invited to write us.



Double Break Machine, capacity 120 bushels per hour.

**CASE MANUFACTURING CO.,**  
OFFICE AND FACTORY, 5th Street, North of Naughten.

[Please mention the United States Miller, when you write to us.]

**CO.,**  
**COLUMBUS, OHIO.**

## A NEW DEPARTURE

We are the Sole and Exclusive Licensees for this Country under the  
**MORRITZ MARTIN PATENTS**

## Centrifugal Flour Dressing Reels

And we are now prepared to fill orders for machines with latest improvements, which include

**OUR NEW DOUBLE CONVEYORS,**  
**NEW CLOTH FIXING AND STRETCHING DEVICE,**  
**NEW AND SIMPLIFIED MANNER OF DRIVING.**

THE CENTRIFUGAL has more than **FOUR TIMES** the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over. IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner. IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do. IT IS VASTLY SUPERIOR to the common reel for dusting middlings. THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

**Over one Hundred sold in six weeks.**

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

**GEO. T. SMITH MIDDINGS PURIFIER CO., - Jackson, Michigan.**

[Please mention the United States Miller when you write to us.]

## AN OPEN LETTER.

Office of J. B. Miller & Co., Ashley, O.

Ashley, O., Aug. 15, 1882.

Mr. C. F. Miller, Mansfield, O.

Dear Sir:—In reply to your favor of recent date, we have now been running about four months, and wish to say to you that your system of bolting, as adopted in our Roller Mill, has proved to be a great success, and your bolting cloth is certainly of very superior quality. We have not found it necessary to make any changes, since starting our mill, and we are very much pleased with results, both as to quality and yield of flour. In conclusion we wish to express our high appreciation of your ability in arranging mills, to operate on the gradual reduction system.

Very truly yours,

J. B. MILLER & CO.

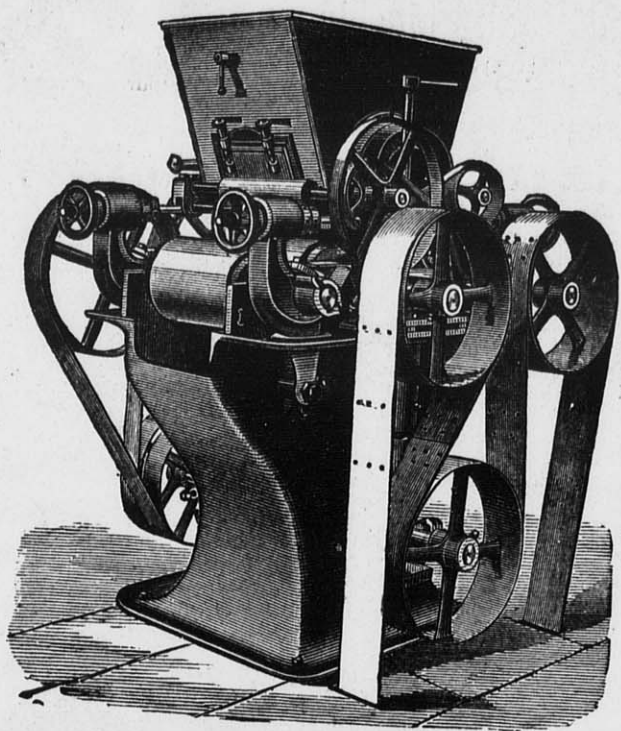
**C. F. MILLER,**

MANSFIELD, OHIO.

Materials and Plans for Stone or Roller Mills. Roller Mills furnished complete with all necessary appliances, and the most perfect system of bolting for Mills of any desired capacity. Genuine Zurich Silk Bolting Cloths by the piece, or made up with Webbing. Warranted best quality.

Mention the United States Miller when you write.]



**EDW. P. ALLIS & CO.****MILWAUKEE, WISCONSIN.****MILL BUILDERS AND FURNISHERS,****AND SOLE MANUFACTURERS OF****GRAY'S PATENT NOISELESS****ROLLER MILLS****CORRUGATED AND SMOOTH CHILLED IRON ROLLS,****WEGMANN'S PATENT PORCELAIN ROLLER.**

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and Rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

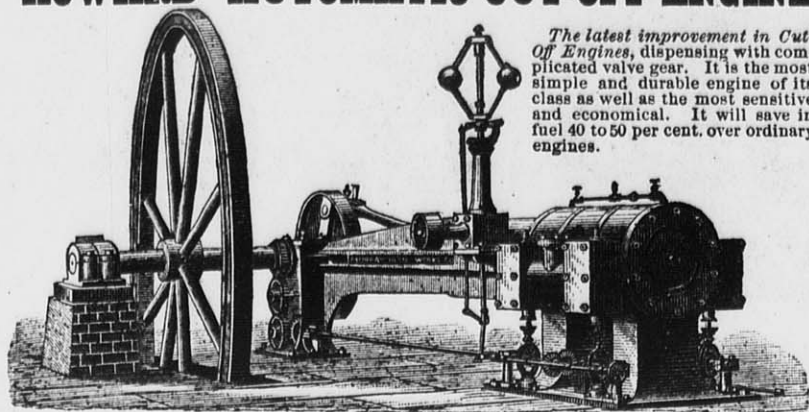
Send for New Illustrated Catalogue, Giving full Information, to

**EDW. P. ALLIS & CO.,****MILWAUKEE, WIS.**

Branch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.

**J. R. CROSS, Manager.**



**"HOWARD" AUTOMATIC CUT-OFF ENGINE.**

Built only by the **MURRAY IRON WORKS CO., BURLINGTON, IOWA.**

BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY.

Mention this Paper when you write to us.]

**Flour Wanted.**

Millers wishing to sell their Flour direct in New England at a small commission, by a salesman who can furnish first-class reference, please address

**FLOUR SALESMAN,**

Box 2679, Boston, Mass.

**DON'T BUILD A MILL** until you write for Prices and Samples to the **BODINE ROOFING COMPANY** MANFIELD, OHIO.

**TO WHOM IT MAY CONCERN.**

Notice is hereby given, that all differences existing between **Mr. A. MECHWART**, Director of Ganz's Establishment, owner of the patents on Corrugated (hard-cast) Rollers, dated March 9th, 1876, No. 5527, and the undersigned have been amicably settled; that we concede his patent to be fully in force and that we will, during the continuance of this patent, waive the right of sale of said Corrugated Rollers throughout Austria-Hungary.

VIENNA, September 20, 1882.

**G. Daverio.**

**A. Niessner & Co.**

Referring to the above we wish to announce that all legal proceedings against Messrs. **A. NIESSNER & CO.**, and **Mr. G. DAVERIO**, have been suspended.

BUDA-PEST, September 22, 1882.

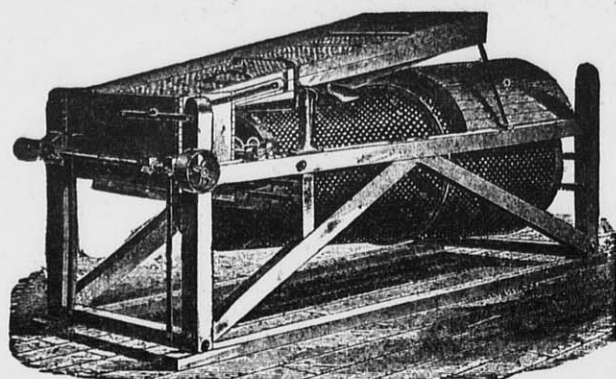
**GANZ & CO.,**

**Iron Founders and Machinery Mfg. Co.**

[Mention the United States Miller when you write to us.]

# COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.

## GENERAL MILL FURNISHERS



PLAIN COCKLE MACHINE.

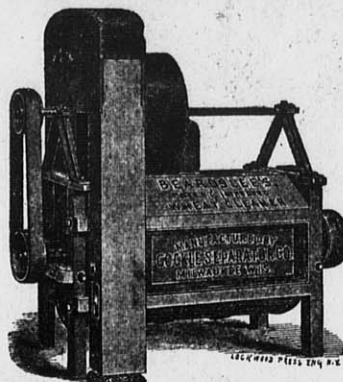
### AND MANUFACTURERS OF

## IMPROVED COCKLE SEPARATORS

(Kurth's Patent.) Also built in combination with

### Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of **BEARDSLEE'S PAT. GRAIN CLEANER.**



BEARDSLEE'S WHEAT CLEANER.

Perforated Zinc at Bottom Figures.

Send for Illustrated Catalogue.

**WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK.** Any common Sieve will separate the cockle from wheat, but to separate it **WITHOUT WASTE** is the **GREATEST FEATURE** of our Machine. A **WASTEFUL** machine is a **DAILY LOSS OF MONEY** in a mill. There is **NO MACHINE IN THE MARKET** which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.

**Cockle Separator Mfg. Co., Milwaukee.**  
Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We have tested ours thoroughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

**BROWN & WINFREY.**

Perrysville, Ind., Nov. 24, 1881.

**Cockle Separator Mfg. Co., Milwaukee.**  
Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of.

Yours respectfully,

**B. O. CARPENTER.**

Hixton, Jackson Co., Wis., Dec. 30, '81

**Cockle Separator Mfg. Co., Milwaukee.**  
Gents:—In answer to your inquiry of the 28th inst., I would say that the combined machine I bought of you last summer, works to my entire satisfaction.

Respectfully yours,

**W. T. PRICE,**

per **D. G. THOMAS.**

P. S.—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain

Yours, etc.

**D. G. THOMAS.**

Minneapolis, Minn. Aug. 22, 1881.

**Cockle Separator Mfg. Co.:**

We have been using two of Beardslee's wheat cleaners, a scourer and finisher, for nearly two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using any other cleaners, and consider our wheat as well cleaned as any in Minneapolis.

Yours truly,

**CAHILL, FLETCHER & CO.**

La Crosse, Wis., July 30, 1881.

**Cockle Separator Mfg. Co., Milwaukee.**

Gentlemen:—The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

time with very satisfactory results. We cannot see that it breaks the wheat or requires an unusual amount of power to run it.

Yours truly,

**WILLIAM LISTMAN.**

Milwaukee, Wis., Aug. 23, 1881.

**Cockle Separator Mfg. Co.**

Gentlemen:—The Beardslee's Grain Cleaners which we have purchased from you for our New Era and Milwaukee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation.

Yours truly,

**NEW ERA MILLING CO.**

**Pott's Patent Automatic Feeder!**

The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

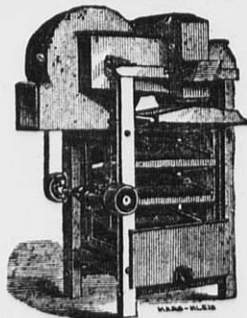
# HOWES, BABCOCK & EWELL,

Established 1856.

Silver Creek, Chautauqua County, New York, U. S. A.

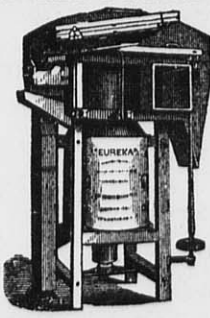
Established 1856.

MANUFACTURERS OF THE WORLD-REOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED



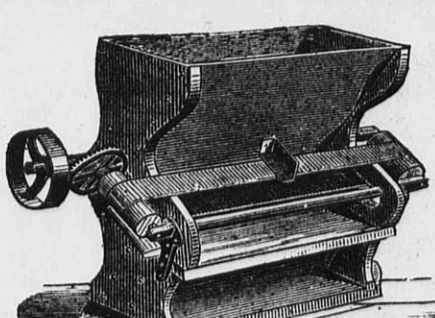
The Eureka Separator

occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from 100 to 1,000 bushels per hour.



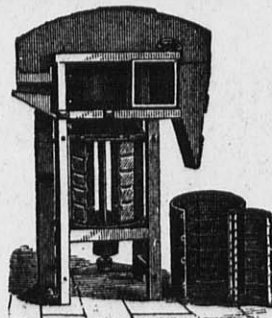
The Eureka Smut and Separating Machine.

A combined Smut and Separating Machine, having thorough ventilation. Over 14,000 of these Machines are now in use.



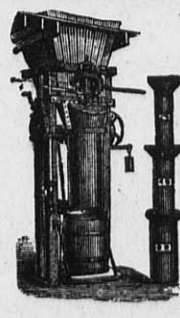
Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of grain, requiring no attention from the miller. 5 sizes.



Eureka Brush Finishing Machine

Recognized as the leading one of this class of machines. Universally recommended for finishing the process of cleaning.



Silver Creek Flour Packer.

Will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-saving patent creveling steel coil spring regulating the packing to perfection.

**GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS.**

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**FULL STOCK ALWAYS ON HAND. MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.**

Gen. Agency for Australian Colonies & New Zealand, **THOS. TYSON, MELBOURNE, VICTORIA.**

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PRACTICAL HINTS

## Mill Building.

The Latest, Best and Only Exclusively Flour Mill Work in Print.

Every Miller, Millwright and Millwright's Apprentice should have a copy.

THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4.00. Address,

**UNITED STATES MILLER,**

Milwaukee Wis

## EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

## BECKER BRUSH,

Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

**EUREKA MAN'G CO., ROCK FALLS, ILL., U. S. A.**

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